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Gilksten & Son, Ltd.
Hall, L.
Jennings, C. & Co.
Lacy, C. & Co.
Longbotham, J. & Co.
Longhurst, E. & Sons
Millar's Timber & Trading Co
Price & Low, Ltd
Priday, S.
Venesta, Ltd.

Tyres—
Bergougnan Tyre Co.
Dunlop Rubber Co. Ltd.
Michelin
North British Rubber Co.
Palatine

Underpinning, &c.—
Engert & Rolfe Ltd.
McNeill, F. & Co. Ltd
Vulcanite, Ltd.
Willesden Paper & Canvas Wks

Ventilating—
Boyle, R. & Son
Dargue, Griffiths & Co., Ltd.
Ewart & Son, Ltd.
Haywards, Ltd.
Keith & Blackman Co.
Kinnell, Chas. P. & Co., Ltd.
Murray, S. D. & Co., Ltd.
Rosser & Russell, Ltd.
Sturtevant Engineering Co. Ld

Wall & Ceiling Covering—
Beaver Board Co., Ltd
Fiberlic
Machin & Kingsley, Ltd
O'Brien, Thomas & Co.
Thames Mills (Calno)
Venesta, Ltd.
Young & Marten Ltd

Waterproofing—
Adamite & Co., Ltd.
Callender, G. M. & Co.
Ebner J. F.
Korner-Greenwood & Co. (Pudlo)
Super Cement, Ltd.
Titon (Liverpool) Ltd.
Torbay & Dart Paint Co.

Wine Bins (Iron)—
Bayliss, Jones & Bayliss, Ltd.
Farrow & Jackson

Wire Screens—
Duke, Waring, Crisp & Co.
Johnson Clapham & Morris, Ld
Moriarty & Co. (1911) Ltd.
Parker, Winder & Achurch

Window Frames & Sashes
Braby, F. & Co. Ltd.
Carron Company
Clark, Hunt, & Co. Ltd.
Crittall Mfg. Co., Ltd.
Hayter, Ltd.
Haywards, Ltd
Williams & Williams, Ltd.

Wood Flooring—
Acme Flooring and Paving Co.
Ebner, J. F.
Improved Wood Pavement Co.
Turpin's
Zeta Wood Flooring Co.

Wood Preservative—
Fuller, John H. & Co. Ltd
Maclean Wm. Sons, & Co.
Major & Co., Ltd.
Reparo, Ltd.
Sterns, Ltd.

THE BUILDER

A RECORD OF ARCHITECTURE AND CONSTRUCTION.

WITH WHICH IS INCORPORATED THE "BRITISH ARCHITECT."

VOL. CXIX.—No. 4057. NOVEMBER 5, 1920.

THE PRESIDENT'S ADDRESS.

WE were reminded, while listening to Mr. J. W. Simpson's thoughtful presidential address to members of the Royal Institute of British Architects, of Sir Henry Wotton's *obiter dicta* that "architecture can want no commendation where there are noble men, or noble mindes," for if his address is not altogether a commendation it follows his last year's "panegyric of the architect's vocation"—to use his own words—with an exhortation to lift up our hearts and take courage in full assurance that every building rightly planned and honestly constructed "stands squarely upon the ancient ways." It may at once be said that such an assurance by the President of the premier architectural society of the country would be unnecessary if the public were of noble minds, and all practising architects were properly qualified to follow such a calling; but the President's words were well chosen, for much depends, at least so far as architects themselves are concerned, on right plan and honest construction. The quality of architecture reflects the character and training of the men who produce it, for without competent architects we cannot expect good architecture; and it is because buildings are not always rightly planned and honestly constructed that the art and its exponents are sometimes misjudged and take an inferior place in the estimation of the intellectual public.

This, of course, is what Mr. Simpson meant; there will be little desire to doubt his belief that the level of our architectural design is high—higher, perhaps, he says, "than that of any period or country," and though that opinion cannot be accepted without some reservation, he is certainly on firm ground in asserting that our domestic work is the admiration of the world. His claim for modern work is excellent commentary on the views recently expressed by Sir Frederick Andrews, Professor of Pathology at London University, and to which we made reference in a recent issue. The Professor, in his theory of the past and present of science and art, claimed that while science was still rapidly advancing with us, we as a race were now "quite incapable of Salisbury Cathedral, Magdalen Tower, or of Henry VII's Chapel." We ventured to observe in our comments on this sweeping assertion that the work of Bentley, Bodley, Pearson, and others is, in its own way, a worthy successor to the buildings he refers to, and this opinion is emphasised by Mr. Simpson. "Such buildings," he says, "as Westminster Cathedral, the Houses of Parliament and St. George's Hall; the works of Soane, Scott, Bodley, Pearson, Pennethorne, Shaw, Street, Philip Webb, and their like, will not be denied immortality"; and we believe this to be true, and that because there is no perfection in art there can be no final achievement. The great works of the past may at any time be equalled by modern architects, and it is well to remember that with changing times and conditions men are always forthcoming to deal with them. The problems may not be the same, but if they are honestly faced and handled, and if the plan meets the requirements and elevation conforms to plan, and if workmanship is good, why should modern buildings fail in comparison with works of the past? The uninformed critic is too prone to assume that recently erected buildings, because they do not look like the works of the past, are inferior, but fortunately the well-designed and soundly constructed works erected in recent times are sufficiently numerous to justify the belief that much modern work will bear favourable comparison with that of other times. Though it is not possible for us to know how our work will be judged by posterity and how it will compare with the world's masterpieces, we can at least hope, and with some confidence, that they will award it a place with the best of most periods. It is no new thing, says Mr. Simpson, "this eulogy of the past and disparagement of the present," and there we suppose architects, like other artists, must be content to leave the matter.

But a word may be said for the public and the critics, who are expected to take an interest in architecture and yet have so little to guide them. No doubt the public are almost inevitably wrong in their criticisms of architecture, but in asking for originality and a "national style" there is surely some excuse for them. Architects themselves sometimes speak of creating a national style and there are on record attempts at originality which have not been without their influence in the formation of the public belief that old work is always better than modern. The public admiration for the old is due in some measure to historical association and to the charm imparted by the hand of Time, but there are those among the educated public who have been led to think there is more in it than that.

Although Mr. Simpson's opening words at the beginning of the new session are of good cheer, he does not assert that all is well at the moment. "It never was," he says, and he is undoubtedly right in pointing out that we are "at one of the many difficult places in the age long road of art we are building." But are these difficult places inevitable, growing out of uncontrollable conditions, or do they arise out of our individual defects and shortcomings as artists and craftsmen? Were the great buildings of past times erected under conditions that were more favourable to the production of works which are the admiration of all ages? And did the old builders and craftsmen work under the influence of a love and enthusiasm for their individual craft which we can hardly expect invariably to find in our modern system of building, requiring as it does the utmost speed in execution? Was architecture then more often an art and science, as all good building must be? While we agree with Mr. Simpson that buildings are being erected in our own time that will probably take their place with the best works of almost any period, we are not blind to the fact that buildings are being erected the designers of which have little capacity for producing architecture, though their scientific and business knowledge leaves little or nothing to be desired. It is this work which is noted by the critic who too frequently assumes that it is representative of the work of the time. We believe the standard of architecture has greatly improved, but that there is need for better training of architects and the elimination of the unfit student before it is too late. This need for more thorough education and training is fully recognised by all competent architects, and we look to the future with confidence that the efforts which are now being made in our architectural schools will have their result in training men capable of producing buildings "rightly planned and honestly constructed."

On the many and anxious post-war problems affecting practising architects and the building industry the President did not touch, no doubt believing that in the opening address domestic and controversial subjects should be avoided. Perhaps he was right, but we cannot help thinking that some statement from the chair in reference to the unification of the profession, the position of the building industry, and one or two other questions of vital interest to the profession and the industry would have been welcomed and might have strengthened the prevalent hope that his admirable and successful efforts in promoting the unification movement, for instance, would not be in vain. May we still hope that such words may soon be forthcoming?

NOTES.

Bath Rural Housing.

THE Bath Rural District Council had before them at a recent meeting the question of delay in proceeding with workmen's houses, when Colonel Mozley, the Housing Commissioner, who was present, asked for an assurance of progress, as only eight houses were being proceeded with out of 160 approved. After discussion, during which the Council were accused of not wishing to get on with the scheme, Colonel Mozley was assured that 52 houses would be commenced shortly, and the Commissioner said the Ministry would "allow the Council to get speculative builders to do the work without architects' plans if the prices and space allowed were satisfactory." If this statement correctly expresses the intentions of the Ministry, it is surely a matter for the special consideration of the R.I.B.A. and the Society of Architects. We have always understood that the Ministry urged local bodies to consult and employ architects in their housing work, and if this is so, we can only hope that Col. Mozley has been misrepresented. Otherwise the position is a serious one from several points of view.

Competitions.

WE are glad to note that a Memorandum has been drawn up and issued, with the signatures of the R.I.B.A. Competitions Committee, and the Secretary of the Society of Architects, which urges on the promoters of competitions the vital importance of taking expert advice on the subject from the beginning, so that the competitions may not be officially banned, and that the promoters may secure the best results. How to get such a Memorandum into the hands of all who should see it may not be so easy a matter.

The Civic Survey at the R.I.B.A.

THE work which has been going on for a long time has now crystallised in the exhibition of the work of the Civic Survey in the Institute Galleries. This should produce a valuable impression on the public mind as to the problems and needs of London. We have here maps of London with proper definitions of its area as to recreation, electricity, gas and water, local administration, vital statistics, physical boundaries, and licensed houses. Amongst other surveys shown, we have a remarkably telling map of the civic survey of South-East Lancashire. When all these are collected and published, we shall have a valuable record before us. This exhibition will be open free to the public for several weeks.

Old Agricultural Implements.

THOSE acquainted with the country side, the ancient villages of Berkshire, the Cotswolds and elsewhere, will recall the pleasure derived in noticing the fine craftsmanship of the traditional farm implements still in use—the wain or carrying wagon, the sheep trough, plough, and others, used for carrying, feeding or tilling the soil. These, with the changed conditions of agriculture, are all disappearing, as Mr. C. H. B. Quennell reminds us in the letter we print on p. 511. All record of these farm implements will, in time, be lost, unless some effort is made to preserve examples. At the present time, the beautiful old farm wagons are being destroyed because the price of scrap iron has gone up, and we are told that at the Michaelmas sales, they are disposed of and then broken up for the few shillings' worth of old metal. "Two beauties," so we are told, "have gone this way quite recently." Such destruction ought to be met by the purchase of a few examples to preserve a record, before it is too late; and the museum authorities should be asked to interest themselves in the matter. We recall one old wagon which stood, at one time, in a rickyard near the churchyard wall of a Berkshire village. This old veteran, its day's work done, often delighted us with the rhythm of its curving lines, its supple waist and wide-splayed, powerful wheels, the sides chamfered and touched with ornament—typical of the romance of Agriculture and the festival of Harvest Home.

The Ancient Glass in York Minster.

AN announcement in the newspapers of the intention to raise funds for the preservation of the valuable fourteenth-century glass in York Minster, which, we are told, involves the taking out and re-leading of all the ancient glass, is a matter of national interest. It is much to be hoped that the Chapter of York will be guided by the same caution and discernment as their predecessors in the fourteenth century, who, owing to the care with which they made their contracts, largely helped to secure such beautiful windows. Very great care will be needed lest the restorer's hand should injure them in any way. We do not suggest that at the present time such a misfortune is as likely as before, but it should be remembered that the record of all this sort of restoration is very bad, and that the "eminent" firm who carried out the work of restoration in 1820 of the mediæval glass in Winchester College Chapel replaced it with new, and either sold or destroyed the original. Other cases have occurred in the past of the restoration of windows which, before being replaced, had much of the original glass abstracted.

The Broadmoor Hotel, Colorado Springs, U.S.A. MESSRS. WARREN & WETMORE, Architects. (*See* p. 515.)

Spanish Art at Burlington House.

How to Repair the Glass.

WE should not suppose that the architect of the Cathedral is responsible for the statement made in the same announcement that "there are not many craftsmen who can do the work of taking out, re-leading and replacing the glass." It would be unjust to the numbers of skilful glaziers who are quite capable of such work, which, though lengthy and requiring the greatest care, is, after all, quite a straightforward matter. Besides, it is putting the emphasis in the wrong place. The problem does not lie so much in the ability to do the actual work, but in the danger of the glass being re-leaded and repaired with loss to its original beauty through want of artistic understanding in the direction of the work; through lack of an artist of first-rate ability and acquainted with the material to direct what is executed by the glaziers or the firm given charge of the work. Otherwise restoration here as elsewhere may prove the last of the original glory of the windows.

Private Commandeering.

ACCORDING to a report in the daily Press, an organisation called the National Union of Ex-Service Men in conjunction with the People's Protection League and the East Ham Trades' Council has taken possession of some houses in East Ham which had boards exhibited announcing that the houses were for sale and has installed persons in them, and it is stated in the report that the Hon. Secretary of the first-named organisation had stated that there was no fear of ejectment as the persons thus installed were prepared to pay the rent, and in the event of any action by the owners the Union would have the support of the East Ham Labour Council, with a membership of 8,000. If these reports are correct, it appears that some action should be taken to vindicate the rights of property owners from private confiscation. The Ministry of Health (Miscellaneous Provisions) Bill, the terms of which were set out in our issue for September 24, contains a provision which will enable local authorities compulsorily to hire vacant houses, but this Bill is not yet law, and even if it were there is a vast difference between a recognised authority exerting statutory powers and any private body taking the law into its own hands. We trust that the statutory commandeering rendered necessary during the war will not lead persons to think that they can act with impunity without any legal authority in expropriating private property.

Power of Reflection of Colours.

SOME interesting figures are quoted in a recent issue of *Construction* as to the power of reflection of different colours, from tests by Mr. L. G. Denis. We are all very apt to be indifferent to the relation between the illumination of rooms and the treatment of their walls, and this is a matter upon which architects should be able confidently to advise. Though often of secondary importance in a private house this may be of great moment in a public building. The amount of light reflected as percentages of the light used are given as follows:—Flat white, 80; flat ivory, 76; flat buff, 59; flat tan, 37; enamel pink, 51; enamel sky blue, 31; enamel red, 27; enamel grass green, 10. These figures are very interesting, and the last somewhat surprising.

The R.I.B.A. Meeting Room.

THE re-arrangement of the seats in the meeting room of the R.I.B.A. on Monday is, we believe, an alteration in the right direction, but something more might be done to assist that part of the audience on a line with or behind the dais to hear. Those who were not seated in front of the speakers on Monday failed to hear all that was said, while the representatives of the Press, who play an important part in these proceedings, were placed at a distinct disadvantage. By moving the dais a little nearer to the wall a welcome improvement could be effected.

Spanish Art at Burlington House. (See page 520).

GENERAL NEWS.

Professional Announcements.

Mr. Thos. P. Tinslay, F.S.I., Lic.R.I.B.A., has removed to 26, Wilfred-street, Buckingham Gate, Westminster, S.W. 1.

Professor E. R. Matthews, A.M.Inst.C.E., F.R.S.E., F.R.San.I., has been appointed chief sanitary engineer to H.M. Office of Works, and will serve under the Director of Works, Sir Frank Baines, C.B.E., M.V.O.

"The Kensingtons at Laventie."

In response to a widely expressed desire Lord Cowdray has lent Mr. Eric Kennington's large painting on glass, "The Kensingtons at Laventie," for inclusion in the Artists' Exhibition at the Alpine Club Gallery.

Chelsea War Memorial.

A memorial cross to the inhabitants of Chelsea who lost their lives in the war was unveiled by Field-Marshal Sir William Robertson on Monday last. The monument, which was designed by Sir Reginald Blomfield, R.A., is similar in design, though larger, to that adopted by the War Office for erection over the graves of British soldiers in France.

The Threatened City Churches.

The Guildhall Librarian has arranged an exhibition of old and modern views of the nineteen City churches which the Bishop of London's Commission has recommended for demolition. The exhibition, which is now open at the Guildhall Library, includes about fifty engravings and several photographs.

Architects' and Surveyors' Assistants' Professional Union.

The Metropolitan Branch of the Architects' and Surveyors' Assistants' Professional Union have arranged a programme of social events for the coming winter, including the following:—November 13, Dance at the Portman Rooms, 7.30 p.m. till midnight; November 27, Visit to the Soane Museum, 2.30 p.m.; December 4, Visit to the Tate Gallery, 2 p.m.; December 11, Whist Drive at the Cabin Restaurant, Caxton House, S.W., 8 p.m. Tickets may be obtained from the Hon. Secretary, Social Sub-Committee, A.S.A.P.U., 33, Tothill-street, S.W. 1.

Tell el-Amarna.

The first of a series of lectures arranged by the Egypt Exploration Society was delivered at the Royal Society last week by Professor Newberry. Tell el-Amarna, he said, marked the site of an ancient city founded by King Akhenaton in Middle Egypt in the 14th century B.C. Wilkinson and others, who were exploring in Egypt in the early twenties of the last century, and since then every Egyptologist, had had something to say about the remarkable monuments that had been found in the vicinity.

The Surveyors' Institution.

The first ordinary general meeting of the session will be held in the lecture hall of the Surveyors' Institution, Great George-street, S.W., on November 8, when Mr. John Willmot will deliver his Presidential Address. Previous to the meeting, the President will unveil the portraits of Mr. Howard Martin and Sir John Oakley, which have been painted for the Institution and hung in the lecture hall. Mr. Howard Martin's portrait, by Mr. Lance Calkin, was painted to commemorate his appointment as first official arbitrator under the Acquisition of Land Act, 1919, and his many years' service to the Institution as a Member of Council. That of Sir John Oakley, which is by Mr. R. G. Eves, is intended to mark his Presidency during the Jubilee year of the Institution and to signalise the honour of knighthood conferred on him by His Majesty.

The Royal Institute of British Architects.

The programme of papers to be read at the Royal Institute of British Architects during the present session is as follows: November 15 Mr. Rudolph Dircks (Librarian, R.I.B.A.) on "The Library of the Royal Institute of British Architects"; December 13, Mr. M. S. Briggs on "Saracenic Architecture in Egypt and Palestine"; January 17, Mr. H. Chalton Bradshaw on "The Restoration of Praeneste"; January 31, President's Address to Students; February 14, Mr. H. Percy Willink on "The Cunard Building"; March 14, Mr. H. Percy Adams on "Cottage Hospitals"; April 4, Sir Lawrence Weaver on "The Land Settlement Building Work of the Ministry of Agriculture and Fisheries"; April 18, Mr. Alan E. Munby on "The Utility of Research on Building Materials"; May 23, Paper (subject to be announced); June 20, Presentation of the Royal Gold Medal. The meetings will be held at 9, Conduit-street, W. 1, at 8 p.m., except the President's Address to Students and the presentation of the Royal Gold Medal, which will be at 8.30 p.m.

Worcester Archæological Society.

An interesting description of Malvern Priory windows was given by Mr. G. McNeil Rushforth, at the Priory Church, Wolverhampton, last week, before the members of the Worcester Archæological Society. Mr. Rushforth said the monks were responsible for the painted glass sometime during the middle of the fifteenth century. A great part of it had survived, though a certain amount of dilapidation had occurred. There was considerable irregularity in design, which arose when the church was restored in the nineteenth century. The glass was then moved about and transformed. Since 1910 most of the windows had been re-leaded and made secure, and this work was completed last year. The East window contained, among other scenes, the figures of the Oseney. One of the windows in the choir had mediæval Worcester families of Carter and the history of the Priory, together with the story of St. Werstan portrayed. Another gave a complete set of pictures from the Old Testament.

Obituary.

The *Journal* of the Royal Institute of British Architects announces the death of Mr. Matthew G. Martinson, Mr. Robert A. Parkin, Mr. George A. Sutherland, and Mr. Cyril H. Dyer, all Licentiates.

We regret to announce the death, in his sixtieth year, after a brief illness, of Mr. John Dixon Butler, F.R.I.B.A., architect and surveyor to the Metropolitan Police and Police Courts. After about fifteen years in general practice, during part of which time he acted as surveyor to the Metropolitan and City Police Orphanage, Mr. Butler was appointed Architect and Surveyor to the Metropolitan Police in October, 1895, and completed twenty-five years' tenure of this post two days before his death. He was elected a Fellow of the Royal Institute of British Architects in 1906. During his career Mr. Butler was responsible for the design and erection of upwards of two hundred police buildings, including police courts, police stations, blocks of flats for married officers and section houses for the accommodation of single officers, and in every type of building he introduced a large number of improvements. Among his larger works may be mentioned the new Police Courts at Great Marlborough-street, Old-street, Tower Bridge, Clerkenwell, Greenwich, Woolwich, and the reconstruction of that at Westminster. The rebuilding of Thames Police Court, for which he had prepared designs, is now about to be taken in hand.

Doorway, Pauline R.C. Chapel, Broadmoor, Colorado Springs
MESSRS. MACLAREN & HETHERINGTON, Architects. (See p. 515)

CORRESPONDENCE.

Fees Payable to Quantity Surveyors.

SIR,—Will you kindly reply to the following two queries in your next issue with reference to the scale of fees payable to Quantity Surveyors in connection with State-aided housing schemes as given in the Ministry of Health's General Housing Memorandum, No. 31, dated July 8, 1920 ?

(1).—Supposing quantities are taken out for seven different types of houses, and 250 houses are to be built averaging £900 per house. Would the correct charge be as given below, which is the way we read the calculation should be made ?

12 houses at £900 =	£10,800 at 2%	=	£216 0
60 houses at £900 =	£54,000 at 1%	=	540 0
178 houses at £900 =	£160,200 at ¾%	=	961 4
			£1,717 4

(2).—Supposing only 150 houses were eventually built, would the charge be the same, less 100 houses at £900 = £90,000, at ¾ per cent. = £540 ?

"QUANTS."

[From our reading of General Housing Memorandum No. 31, our correspondent's interpretation would appear to be correct.—ED.]

Old Wagons and Farming Implements.

SIR,—I wonder if any of your readers can help me by the loan of drawings of old wagons and farming implements ? Many of these are of great interest as examples of country craftsmanship, but they are rapidly disappearing now. The petrol engine has invaded the fields and the price of scrap iron has gone up, so at the Michaelmas sales many of these charming old things are bought for breaking up. I am trying to make a series of drawings showing distinctive types, and shall be grateful to my brother architects if they will help me.

C. H. B. QUENNELL.

"The Harvest of Ruskin."

SIR,—In my recently published book, "The Harvest of Ruskin," I state on page 156 that the Builders' Parliament in August, 1919, passed by an overwhelming majority the Foster Report, under which masters would become paid officials and capitalists would receive a fixed interest. I find that there is a serious mistake here, the fact being that after a hostile amendment had been defeated by an overwhelming majority the Report was received and handed back for further development without being actually endorsed. This last very important decision has, I understand, not yet been made.

JOHN W. GRAHAM.

Architects and Surveyors and Unemployment Insurance.

SIR,—Members of the architectural and surveying professions will, of course, be aware that the National Unemployment Insurance Act comes into force on November 8. Unless action is taken, those in the architectural and surveying professions coming within the scope of the Act will be compelled to pay their contributions to a Labour Exchange, register there in case of unemployment if they wish to draw benefit, and report daily until employment is found. Most architects and surveyors will probably find this a very unpalatable procedure, and the purpose of this letter is to let all concerned know that an attempt is being made to form a special Unemployment Society under Section 18 of the Act, and in this way to keep the control of unemployment insurance in the architectural and surveying professions in the hands of architects and surveyors themselves.

At a meeting held this week at which were represented the Royal Institute of British Architects, the Surveyors' Institution, the Architectural Association and the Society of Architects, together with the Architects' and Surveyors' Assistants' Professional Union, it was decided to take all necessary steps to organise a scheme for unemployment insurance under the above-mentioned section, and I was requested to convey this information to your readers, with a request that those concerned will bear this in mind and await with patience the further developments of the scheme. This should not prevent them from stamping unemployment insurance cards in the ordinary way, but they are advised not to join any other society, or make any definite arrangements for the future until our scheme is matured.

H. R. YERBURY,
Secretary.

The Architectural Association.

The Position of the Building Industry.

SIR,—Much has been said recently regarding the causes and the remedy for the present chaotic state of the building trade, and I hesitate to add to it ; but while, no doubt, many of the suggestions are excellent, and others, like the Bacchanalian conferences favoured by Mr. Bryant Newbold, perhaps less so, we do not draw appreciably nearer a solution of our difficulties.

"The Bird of Time hath but a little way to fly," and a period which should be echoing to the sound of hammer and saw and the rattle of "T"-squares is being frittered away. The building trade is in need of a man, rather than a coun il, to grasp the essentials and put us on a firm basis. We do not know where we are. We have not the remotest idea when a contract is signed what the ultimate cost will be. Therefore, the client does not know where he is, and mere business, let alone a limited purse, demands to know the extent of the liabilities. So unless he has money to burn, he probably does not build. This, Sir, is not news, but a reason for these remarks. While we are chaffering as to whether when unification, that panacea for all our ills, has emerged from the pupa to the imago, we shall call ourselves this or that, we are losing our hold. The "jerry builder" is not dead, his evil head is slowly rising in various parts, more "jerry" than ever, and the Government subsidy and modified building regulations are helping him all this time.

As there seems at last a prospect of future peace in the coal industry, let us, in the name of common sense, follow a good lead. Forget pre-war prices and get back to pre-war values. Give the operatives their 3s. per hour on the understanding that we get increased output. The English workman is a good enough citizen, as he proved in the war. He may not be overburdened with brains ; and, if his leaders fix a limit to output, he obeys. This dependence and lack of individuality is largely the fault of dead and gone architects and their system. Assure him that there is more danger of the failure of our coal resources than of a cessation of the need for building, and we shall hear the last of "ca' canny."

Councils talk themselves tired. The building trade sickens for a leader of its own blood in sympathy with its many complexities. Fancy Ictinus subject to the vagaries of the Director of Athenean Middens !

Bristol. PERCY BARTLETT, M.S.A.

Inquiry.

A correspondent would like to know where he can get the gas container of an old type of "Dowson" gas plant renewed and the remainder of the plant overhauled.

COMPETITION NEWS.

Llandudno.

FOR THE WAR MEMORIAL COMMITTEE.—Designs for a war memorial, to cost about £1,200. Sending-in day, December 1. Further particulars from Mr. A. Conolly, Town Hall, Llandudno. Members of the Royal Institute of British Architects and the Society of Architects are requested not to take any part in this competition without first ascertaining that the conditions have been approved.

Glasgow.

FOR THE CORPORATION.—Designs for a high school. Sending-in day November 15. (See our issue for October 1.)

East Ham.

FOR THE EAST HAM HOSPITAL COMMITTEE.—Designs for a general hospital, to cost £40,000. Sending-in day, February 25, 1921. (See advertisement this week.)

Public House Competition.

FOR THE WORSHIPFUL COMPANY OF BREWERS.—Designs for an improved public house. This competition is limited to Members and Licentiates of the Royal Institute of British Architects, and the conditions of competition may be obtained from the Secretary, R.I.B.A., 9, Conduit-street, W. 1, on deposit of £2 2s. Sending-in day, January 31, 1921.

Gateshead.

FOR THE WAR MEMORIAL COMMITTEE.—Designs for a cenotaph in grey granite. Approximate cost, £4,500. Sending-in day, December 1. Further particulars from Mr. George Gill, West-street, Gateshead. The Royal Institute of British Architects and the Society of Architects call attention to the fact that the conditions of this competition are unsatisfactory, and advise members to take no part in it until the conditions have been revised.

YORK MINSTER MEMORIAL COMPETITION.

Messrs. Walter Tapper, H. V. Lanchester and Robert Atkinson, FF.R.I.B.A., the assessors, have awarded the premiums in the competition for a memorial in York Minster to the members of the K.O.Y.L.I. who fell in the war, as follows :—First.—Mr. Chas. F. Annesley Voysey ; Second (Premium 25 guineas).—Mr. T. Frank Green. The following are bracketed equal, and awarded 15 guineas each :—Mr. Wilfrid Bond, Mr. Clement W. Jewitt, Messrs. Leonard Stokes, Drysdale & Aylwin, and Messrs. Whiteing, Reynolds & Hill.

The choice of a war memorial, its site, and its appropriate setting is certainly not an easy problem to solve, and we should imagine that the choice of position for that to the Yorkshire soldiers in York Minster has not been a very wise one. The result of the competition, which has had the advantage of able assessors and has attracted some capable competitors, does not appear altogether satisfactory. The winning design, by Mr. Chas. A. Voysey, is characteristic and good, but will, we should think, be considered to fall rather short of impressive and striking quality. The symbolical panel above, within the arch, and the inscription panel below, will doubtless form a pleasant and unobtrusive point of decoration in the Early English arcade, the continuity of which it will in no way interrupt, but we imagine a dainty Gothic shrine and canopy would have made a stronger appeal to the general public. At the same time Mr. Voysey's design would be admirable in its way whether in a Gothic cathedral or a Classic temple. The design placed second, by Mr. T. Frank Green, is a very pleasing essay in Gothic, and would suit its setting admirably. Designs numbered 17 and 28 are also successful Gothic designs, the former having a projecting canopy design. No. 12 is the only one which follows closely the Early English work, and is of its kind very good. The clever designs which were all bracketed third would, we imagine, be so placed by a popular verdict. That a design which will be pleasing and possess individual character should be placed first, would only be expected from the assessors, but whether it is the best to place amongst the venerated surroundings of our great cathedral may be open to a little doubt.

THE first meeting of the Royal Institute of British Architects for the Session 1920–21 was held at 9, Conduit-street, W. 1, on Monday last, MR. JOHN W. SIMPSON (President) in the chair. Amongst those present were the Right Hon. The Earl of Crawford and Balcarres, P.C., Lord Leverhulme, the Very Rev. the Dean of St. Paul's, Sir Reginald Antrobus, Sir Lionel Earle, Sir Charles Ruthen, Sir Lawrence Weaver, the Principal of King's College, the Vice-Chancellor of the University of London, the President of the Surveyors' Institution, the Master of the Brewers' Company, Mr. W. R. Davies, Mr. E. R. Forber, Mr. Marion H. Spielmann, and many well-known architects.

MR. WALTER CAVE (Hon. Secretary) moved that the minutes of the last meeting be confirmed and this was carried unanimously.

Inaugural Address.

The PRESIDENT then delivered his Inaugural Address, which was as follows :—

My Lords, Ladies, and Gentlemen,—Twelve months ago—at the opening of our first session after the conclusion of peace with Germany—it was my privilege to direct your attention to the qualifications of the architect, with especial reference to certain aspects of a mental training, which should render his services valuable to the State during a period of reconstruction. That since that time we have observed little recognition of the profitable national asset the nation possesses in its architects will not greatly surprise you. When the sower went forth to sow, some seeds fell by the wayside of indifference ; some fell on political stony places where, having no deepness of voting earth, they withered away ; others, among thorns of vested interests, which sprang up and choked them ; only a proportion fell into the good ground of an intelligent audience ! Yet the grain was of right quality, and the sower's duty was to sow it. "He that hath ears to hear, let him hear," says the parable.

To-night I propose to follow my panegyric of the architect's vocation with a word of good cheer as to the progress of the art he practises. That all is well at the moment I would not assert (it never was !) ; we are at one of the many difficult places in the age-long road of art we are building, in continuation of the work our fathers began at the world's foundation. There are many to tell us (there always were !) that what we do is far inferior to what was done in the eighteenth, the fourteenth, in any century you please before or after the birth of Christ ; that our case is desperate, since, in their opinion, we have lost direction. Well, it is not given us to see ahead ; we can only range our course by the upstanding stones behind us. But if we step aside to the high hill called "Clear," and look through the Shepherd's Perspective-Glass, we shall see that the track, though devious, trends always upward ; we may even, as did Bunyan's Pilgrims, discern something like the Gate, some of the Glory, of the Celestial City to which it leads. Nor shall we fail to note that while the work nearest our eye is intact and varies much in quality, most of that in the distant past has crumbled away, and only the best of its time remains. The survey, I think, need not discourage us. It shows us art illimitably long, our lives too short to achieve very much, either good or bad. If, then, we only maintain the standard of what has gone we have done well ; if we can advance it by the thickness of a finger-nail we rank with the great masters of all time.

I am not one of those who have a quarrel with critics. "The business of the opposition is to oppose," said Randolph Churchill, and criticism is the proper function of the critic. The work, too, of all creative artists is overt and published, be the publication world-wide or inconsiderable ; but, while that of the painter or the sculptor may be, for the most part, avoided by those who have no liking for it, there is no escaping from architecture. It frames our daily life ; whether we will or no we must look upon it, and submit for good or ill to the mental impressions it evokes. The public, therefore, as well as the technician, may rightly remonstrate if the architect compels them to unpleasing surroundings ; and the critic's duty, a very important one, is to represent and express the views of cultivated folk upon work they cannot choose but see. But the artist, on his side, may justly demand that the building which embodies his experience, knowledge, and skill in design, shall be judged by men competent to understand the laws of its structure, to appreciate its qualities of proportion, scale, and, above all, of fitness for its purpose. In other words, a critic should be thoroughly instructed in the technics of the work he undertakes to judge, so that he may rightly inform the public, whose education he assumes, and stimulate the artist by sound comparisons. "How difficult his duty is, and how ill it is performed for the most part," says Addington Symonds, "none knows better than one who has attempted to discharge it in a sincere and modest spirit."

Incompetent criticism, like any other public duty ill-performed, has evil results. Persistent depreciation of contemporary and recent art is, in great measure, responsible for revolutionary efforts to break away altogether from the past, to find a new and short road to æsthetic expression. Exasperated by incessant taunts, unbalanced minds are stampeded from the quiet fields of honest study into the frantic eccentricities which, now and again, astonish us—and vanish into oblivion. The classic track is no easy one ; they are told it leads nowhere, and lack the faith to follow it to fruition. Architecture has been, perhaps, less disturbed by the clamour than the sister arts ; its solid ballast of utility has steadied it ; but architects, too, are disquieted by demands for originality, for a "national style," by assertions that "the old was better," by accusations of being mere copyists. We need not take the outcry too seriously ; we remember how Molière's satires exposed the ill-informed carping of his day ; how, a hundred years later, Batteux, the Academician, groaned over the decadence of the eighteenth century. "It would appear," he writes, "that in the olden time true taste was achieved without effort, while to us moderns it comes only by an accident. The ancients whose remains we know, led, as it were, by the hand of happy inspiration, trod without fear or faltering the narrow path where we can hardly keep our footing."*

The parallel lies equally in literature. Pepys, an enthusiastic and intelligent playgoer, saw Shakespeare's plays, written some fifty years before, and thought mighty little of them. Having read "Othello" it seemed to him "but a mean thing," "Twelfth Night" he thinks "but a silly play, one of the meanest I ever saw on the stage," "A Midsummer Night's Dream" is for him "the most insipid, ridiculous play that ever I saw," while "Romeo and Juliet" is condemned as "the worst I ever heard in my life."

The middle period of the nineteenth century is still the common quarry of æsthetic hawks, but the work of its earlier years is now discovered to be better than was supposed · Gower-street, built in 1826, is no longer the type of the unlovely. Let us hear what Heine, an accomplished critic and admirer of London, who was here at the time, thought of its architecture. "These houses of brick," he writes in his "English Fragments," "become of a uniform brown olive colour ; they are all of the same style of building, generally two or three windows wide, three stories high, with small red tiles above, which remind one of newly extracted bleeding teeth ; the broad and accurately-aligned streets seem to be bordered by endlessly long barracks. Rich speculators, to meet the demand, build wholesale entire streets of these dwellings, which they retail singly. At the west end, where the more aristocratic and less-occupied world lives, this uniformity is still more dominant ; here there are very long and broad streets, where all the houses are as large as palaces, outwardly anything but distinguished, unless we except the fact that in these, as in all the better-class of houses in London, the windows of the first story are adorned with iron-barred balconies, and on the ground floor there is also a black railing, protecting the entrance to certain cellar apartments buried in the earth. In this part of the city are also great squares, where rows of houses, like those already described, form a quadrangle."

It is no new thing, this eulogy of the past and disparagement of the present. We may doubt if any artist is justly appreciated till long after he is beyond the reach of praise or blame ; some may be overrated, others are certainly underrated ; "The idols of past generations crumble suddenly to dust, while the despised and rejected are lifted to pinnacles of glory."† This is not true of architecture, for it is the mirror of our own life, and the reflection is too clear to be flattering.

My address must necessarily, I fear, be deemed illogical. An artist must be convinced of the rightness of his own work, for without faith is no enthusiasm ; a doubter can never achieve a great creation. If, then, he can so detach himself from conviction as to be able to compare the work of dead masters with his own, to survey dispassionately the past and present, he is no artist, and has no more claim to attention than the casual layman ! The syllogism is irresistible and I offer you my thoughts ; you will form your own conclusions. For my part, I shall prudently evade the consequence of the argument and make no reference to the work of living men.

In determining the merit of modern architectural work there are certain actualities to be taken into account, if we are to arrive at a true judgment. To these, as it seems to me, sufficient attention is not given by those—whether technicians or lay-writers—who attempt to define the quality of recent design in relation to the standards bequeathed by the great ancestors of our calling. If I submit for your consideration some of these controlling facts, it is not by way of excuse for shortcomings, but in order to establish—what I believe to be the truth—that architecture in this country is by no means decadent ; is, on the contrary, healthy, vigorous, and true to the immortal principles of our art.

Traditional education in design during the second half of the nineteenth century was disturbed—one might say bewildered—by a deluge of illustrated books and periodicals due to improved and cheapened processes of photography. The student, instead of having to select and make his own drawings of a chosen subject, thus found at his disposal a heterogeneous mass of information about buildings in every country and style. Though incomplete—presenting selected aspects only of compositions which need plan, elevation, and section to reveal their true meaning ; and prone to emphasise the picturesque, rather than the greater qualities of our art—the material supplied was for the most part good of its kind, and we owe to photography many really valuable works of reference. The trouble was not so much the quality, as the sudden profusion of varied suggestions, confusing to the receptive

* Ch. Batteux, de l'Académie Française. "Les Beaux-Arts reduits a un même Principe" (Paris, 1746).

† Addington Symonds, "On Some Principles of Criticism."

mind, overtaxing its capacity for absorption and digestion. In effect, we have lived through an age which has collected a vast deal of new knowledge, some superficial, but on the whole profitable. Our fathers hardly strayed outside the classic groves of Greece and Rome, save for excursions into the field of Italian Renaissance, a passing glance at its French manifestation, and perhaps a somewhat inappreciative survey of the Gothic cathedrals. We, cheaper and easier travel abetting, have had spread before us an architectural panorama of the whole world through seven thousand years of time—Egypt, Crete, China, Japan, Mexico, India, to say nothing of Spain and the less-visited parts of Europe. The consequence of such an accumulation of new material may recall to you Stevenson's story of the Old Edinburgh grocer. This worthy had excited remark by buying up all the small odd lots at a great wine sale. A curious neighbour called some time after to inquire what use he could have for such material. He was shown a great cask where all the liquors from humble Médoc to imperial Tokay were fermenting together.

"And what," he asked, "will you call this?" "I'm no very sure," replied the grocer, "but I think it's going to be port!" In our case the result may, or may not, be something equally unexpected, but we see already a wider view prevailing of what constitutes tradition, a shedding of prejudice, and much experimental reproduction of exotic work; tentative efforts to find seemly clothing for new needs, to which neither toga, trunk-hose, nor periwig can be suitably adapted.

These "new needs" form perhaps the chief reason for the change from what was deemed traditional design. Educational and commercial requirements, for example, have altered materially since our boyhood, and have to be frankly recognised and provided for. The plate-glass shop window has become an essential element in street design, and we can see already in progress the transition from a monumental ordinance, with its lower story removed—leaving the stately superstructure in the air—to a light pier-treatment carrying an appropriate surface over. With modern systems of construction there should be no difficulty in treating the lower story as a void, instead of as a solid; but the Italian or French palace motive must be abandoned. The great perpendicular windows of York, Beverley, or Gloucester, and those superb arched and traceried canopies where mass increases upward, offer fertile suggestions for steel-frame treatment.

Another and most important factor in contemporary design is hygiene. We are still boggling at soil, waste, and ventilating pipes; deliberately omitting them from our elevations, and letting the sanitary engineer carry them as he can, sprawling over our piers, cornices, and roofs, where they are not shamefully buried in the walls. But the apartments to which they pertain have perforce to be considered, and fenestration becomes a difficult matter; we may no longer plan majestic ranges of window, behind which bathrooms, sinks, and sanitary needs are left to be contrived as best they may. Health authorities fix the area of our windows, settle their height with relation to the ceiling, and (very properly) take no account of a predilection for unbroken wall-space, or of a desire to build according to the tradition of our forefathers; in which, I may observe, external fire-escape stairs found no place. Inside the building similar questions arise. Staircases must be enclosed, to the destruction of delightful vistas; elevators, incongruous to Renaissance motives, are wanted; immense conglomerations of pipes, tubes, and wires must be laid out, and planned in shafts where they can be reached for repair; light and ventilation take precedence of suggestive mystery, and the effect on plan and decoration is revolutionary.

It is useless to cry after the traditions of past days; our problems are altered, and we have to solve them in our own way. Naturally, the change is not yet complete. Fragments of old, beloved formulae still cling to us—not only architectural; railways have existed for a century, yet there are still in use carriages which retain the lines of a stage-coach; the motor-car has long been common, and, as Wells once said, "before each still trots the ghost of a horse."

It is needless to prolong a recital of the innumerable new conditions, materially affecting design, under which we work; the mere suggestion will bring them crowding to your mind. There is another point to consider when we try to measure the art of to-day with that of the past. It is extremely difficult to estimate the exact, cold value of bygone work; time touches even the commonplace with beauty. "The old masters of painting," said Millais, "have time and varnish on their side"; and sturdily asserted his own place beside them. To the artist's mind, the softened outlines and mellowed colouring of ancient buildings make irresistible appeal; while the hard baldness of the new repels him. For the true appraisement of what is generically termed "old work," we must mentally divest it of this adventitious charm, disperse the mist of historic and personal associations through which we see it, and reduce it to its first intention. It is a mere fact that many admired buildings of the past owe but little to their original design, are, moreover, a fortuitous combination of many men's work at various times. Conscious of their elusive, but extrinsic beauty, students essay to delineate them by methods that emphasise their pictorial character, rather than by the merciless line of geometrical projection, which, while finely sensitive to the great qualities of proportion and scale, takes no account of flattering accidents. Conversely, the weak designer strives to win public sympathy by exhibiting drawings of his work, not as it is, but as he hopes it may appear a century hence—ambiguous in detail, weather-stained, grown upon by lichens, and half hidden by foliage.

The charge of "copying," of plagiarism from the past, is perhaps a little inconsistent with the accusation that we disregard tradition; it is none the less interesting to examine. In so far as it is true, it implies a curious failure to realise the great principle that the art of architecture is, perforce, continuous. "Time," said wise Verulam, "innovateth greatly, but quietly, and by degrees, scarce to be perceived; for otherwise whatsoever is new, is unlooked for; and ever it mends some, and pairs others." We may set out to copy, but we cannot succeed. Our ancestors believed themselves to follow the work of their predecessors, and the changes they made in it—probably unpleasing at the time, so far as they were recognised—are clear enough to us. We can identify the buildings that remain, century by century, without need to consult the records of the time. So posterity will examine and date with accuracy the work we do; stamped unconsciously by ourselves as of the last years of the nineteenth, or of that early twentieth century in which we live. You may think to cover yourself with antiquity as with a mantle, but the fashion of your body is as God willed it, and the folds of the garment you have assumed reveal you. Man may not escape the influence of his age; your work, do what you will, is your own, and yours is the responsibility for it. The buildings of the Gothic revival were—and are—denounced as artistic forgeries, yet they can no more be taken for mediæval work than St. George's Hall for that of Roman times. Their date is as unmistakable as that of the buildings which inspired them.

The artist needs encouragement if he is to produce fine work. In so far as my modest authority warrants, I desire to offer it to my fellow-workers, to bid them lift up their hearts and take courage, in full assurance that every building they rightly plan, and honestly construct, stands squarely upon the ancient ways. That many will survive as classic is not to be expected, for the Calendar of Saints is kept severely close, and "classic," as Gaudet finely says, is the artistic equivalent of canonisation. All is classic that deserves to be, irrespective of centuries, origins, or latitudes. It imposes itself; we can only observe and register it. All that has come victorious from the eternal conflict of the arts, all that is universally acclaimed as admirable, is classic. Few buildings in any period have withstood successfully the *advocatus diaboli*, but we need not doubt that our time will furnish its proportion. Such buildings as Westminster Cathedral, the Houses of Parliament, and St. George's Hall; the works of Soane, Scott, Bodley, Pearson, Pennethorne, Philip Webb, Shaw, Street, and their like will not be denied immortality. Art, like nature, sows with a full sack (ours has been a very fertile age); much perishes, and only a few plants of each sowing excel, splendidly abnormal.

Yes! I do not fear to believe that the level of our architectural design is high—higher perhaps than that of any period or country. Our domestic work is the admiration of the world; there have been built throughout the kingdom, during our short span of years, town halls, museums, palaces, offices, hospitals, libraries, schools, which have passed unnoticed save in the local or professional Press, yet they are gems of design, and will be so recognised hereafter. In economic fitness of plan, in structural craft (we have now enlisted steel to our service), in the standards we exact of workmanship and material, our work stands higher than at any former time.

Such is my belief. I assert nothing; neither you nor I can speak with certainty of the relative merit of our contemporary art. The page is too near our eye for us to read what is written there; distance is required for mental, as for physical, vision to find a proper focus. The perspective of time, like that of space, is needed for a just comparison of distant objects with those near at hand. Moreover, we have all seen too many changes of thought with regard to accepted canons of belief, to be dogmatic in opinion. Hazlitt observed, long ago, that distance of time has much the same effect as distance of place*; though, strangely enough, while perceiving this truth with regard to the future, he missed its equal application to the past.

The question of "originality" is bound up with that of comparison. Ecclesiastes, you will remember, pointed out that "The thing which hath been, it is that which shall be; and that which is done is that which shall be done; and there is no new thing under the sun. Is there anything," he asks, "whereof it may be said, 'See, this is new; it hath been already of old time which was before us?'" In this sense, originality is, of course, impossible; on the other hand, the permutations and combinations of the eternal elements of architecture are beyond number, and I take the demand for original design to mean no more than for a fresh disposition of walls, doors, windows, roofs, their proportions and decorations. Here arises a curious point in support of the words of Solomon, who, you will also remember, "praised the dead which are already dead more than the living which are yet alive," for quite other reasons than those of our critics. If a building could be imagined which should be wholly original in design, neither its merit, nor its demerit, could be appreciated by the human mind. It would speak an unknown tongue, and there would be no standard by which to compare it. It follows that in every design must be repeated some known forms, or features, whereby we may interpret and recognise the composition. Here is the reason why old work, the masterpieces of antiquity, must be studied with assiduous care and exactitude, lest our knowledge of them be imperfect, and tradition debased by inferior reproduction.

As for "national style," whether it be good or bad it clearly exists. No one could mistake a British city for one of any other country; our national signature is written all over it. It is, nevertheless, possible that we are on the verge of such a new departure in our art as has taken place in the art of warfare, where "fight

* "Why Distant Objects Please" (Table Talk).

ing," in the historic sense, with the development of guns and swords, seems likely to give place to mere destruction by misuse of the products of peaceful industries. In our case, it may well come about by frank recognition of the qualities of the machine, as opposed to obsolete methods of hand-work. There is nothing inherently uncongenial in the association of machine-work with architecture; the real incongruity is in attempts to maintain, or revive, mediæval craftsmanship in the twentieth century. Its charm lay in its spontaneity, its unaffected fitness for the surroundings of its date; to imitate it is to fabricate artificial flowers, which lack life and perfume. We live in an age of machines, and true architecture must needs reflect their influence. If we set ourselves to the planning and constructing of buildings supremely proper for their purpose, art will take care of itself. An artist will always solve his problem artistically. Finding inspiration in stern utility he transmutes it by his touch into

"Some fragments from his dream of human life,
Shaped by himself . . . ."

The EARL OF CRAWFORD AND BALCARRES proposed a vote of thanks to the President for his well-considered and encouraging statement. It seemed to him that the main underlying propositions in the address were: (1) That good architectural work was being done to-day; (2) that criticism was too often harsh and unsympathetic; and (3) that the architect deserved encouragement and recognition from the community as a whole. With the third fundamental proposition he heartily agreed. Putting aside the great buildings erected immediately before the lifetime of the present members of the Institute, actually to-day good work, honest work and original work was regularly being achieved. It was universally recognised that in domestic architecture, especially in regard to the modern country house in relation to its setting, British architects were in the first rank. He had been told by foreign business men that office buildings in this country were planned with extraordinary knowledge of space and with the maximum of light, and generally that the work was done in a business-like way. But why did not architects invest factories with a little artistic life? He thought architects might very well pay more attention to this part of their work. Some extraordinarily good work had been done in this direction on the Continent in a very simple and inexpensive way. In Scandinavia they were developing a distinct art in the planning and decoration of chimney stacks; there were more chimney stacks in this country than in any other country in the world, and he commended them to the attention of architects. He was especially interested in a by-path of architectural activity, namely, the preservation of ancient buildings, and in this branch of work—the artistic application of science and scientific application of art—British architects were without exception supreme. In the actual technical construction of buildings architecture was never better than it was to-day, but in spite of that, disquiet and anxiety were clearly expressed in the President's address. The immediate outlook gave a good deal of cause for anxiety, but architects were always faced with difficulties. The cost of construction and material alone was tremendous, but the same difficulty had occurred before and had been overcome. He hoped the solution of the difficulty and cost would be found in the simplification of design and the exclusion of superfluous decoration. The modern building which he admired most in London was designed on perhaps the most simple lines of any building during the past 100 years; its distinction depended entirely upon the purity of its lines, because it had nothing else except line to commend it. The building by-laws of local authorities gave architects advice which they had to follow, but in all these matters art was properly subordinated to science. If Palladio or Vignola could be brought to London to-day they would be enthusiastic over the main drainage system, and would gladly exchange some of the freedom they enjoyed in Italy for some of the "troubles" of British architects. He thought the code for critics laid down by the President a little too severe, because criticism had acquired a certain vivacity which might really tend to discourage bad work. To-day good work was being done under very difficult conditions, and work was a prelude to still greater achievements. He was sure that with patience and assiduity and courage architecture would remain true to the immortal tradition of the art, and realise achievements of which later generations would be proud.

The VERY REV. DEAN INGE, in seconding the vote of thanks, said he had been much struck by the fact that the President said nothing in his address about the war, and nothing at all about the still more awful peace. He would have thought that at a time like the present when the bricklayer apparently was only willing to do about 2½ hours' work a day for about £6 a week, and while unfortunate bishops were trying to get rid of their "white elephant" palaces, the architect could only look forward to being employed in putting up almshouses for members of the upper middle classes, or in providing palaces for miners and railwaymen. But perhaps they were looking forward to some main street in London being pulled down for the erection of expanded offices for the trade unions, from which raids on the community could be organised. However, it was pleasing to see that the great profession of architecture could face the future so confidently, and he had no doubt that whatever might happen there would always be a call for beautiful and useful buildings. Their work would also be made more interesting by the fact that new forms of construction would probably have to be used. He thought, however, that the buildings of the future would not be anything very startlingly different from those of the past, for, after all, the architect's materials imposed a certain restraint upon him—one could not imagine a "Cubist" or "Impressionist" style of architecture. It was only in the construction of theological arguments that the foundations were apparently supported on the superstructure.

The vote of thanks was put to the meeting and passed with acclamation.

The PRESIDENT, in a brief reply, said architects did feel considerable confidence in themselves; without that they might as well go away, because without faith there could be no enthusiasm.

"ANCIENT GLASS IN WINCHESTER."*

IF "the style is the man," it seems rather a pity that the format of this book is not better. The contents, however, are a very valuable contribution to the history of stained glass, and show painstaking and exhaustive inquiry. The author presents us with a very vivid and detailed record of the origin and history of the glass at Winchester, touched in with much local colour; and by letting the story speak for itself the life and atmosphere of the mediæval world is brought very actually before us. We seem to see these old craftsmen passing about their work—John Prudde, "one Stephen Glaziere," John Pety (who was also Mayor and glazier, of York), and others. John Prudde, the King's glazier, emerges as a notable figure. Appointed glazier to the King, he was given a shed called "the glazier's logge," within Westminster Palace, and a gown of the King's livery. We see him probably working here on the glass to be placed in Winchester College Chapel, assisted by his fellow craftsmen (1450); also carrying on important work for Eton, Greenwich Palace, and the Beauchamp Chapel at Warwick (wherein by the terms of his agreement he was required to carry out the glazing "with the best, cleanest and strongest glasses of beyond the sea, that may be had in England, with the finest colours, blew, yellow, red, purpure, sanguine and violet." Since when there is little essential difference in the processes of the craft.

Of the great west window of Winchester Cathedral, executed by Thomas the glazier (about 1384), but little remains; and it is more than doubtful if it is possible, as the author suggests, "to trace something of the original design." What was left at the Restoration was collected together and leaded as well as could be. In more recent times, the glass has again been re-leaded and re-placed. If we stand on the choir steps and from there look down the nave towards this great window, we are presented with a kaleidoscopic effect of pleasant colour—an agreeable patchwork made up of bits of canopy work, mutilated inscriptions, heads and general *débris*—a sort of mausoleum of mediæval glass. Have we ever asked ourselves if this expresses all our needs, or satisfies our aspirations? Yet we would not have it altered. Without a revolution in our whole outlook it could hardly be altered without further loss. It is better to offer the poverty of our worship at this ruined shrine, in which we may still discover faint traces of the noble temper out of which it sprang, than to rely on the services of the most eminent firm and the expenditure of £30,000. It is not by such means that there will be any rekindling of those ancient fires, from which once glowed the worship and splendour which we name Gothic. Not until we can burst through the gates of the strangling present and recover our unworldliness, shall we reach a worldly success.

Little remains of the original glass in Winchester College Chapel. As the result of the labours of an "eminent" glass firm, in 1820 nearly all of Wykeham's priceless glass was replaced by new, and the original either sold or destroyed. The results were hailed at the time with delight. Who has not heard alongside of an almost superstitious attention bestowed on any or every unintelligible odds and ends of ancient glass, in the same church and at the same time, the expression of delight at our "new stained glass window"—and what a window! Have the full possibilities of stained glass even yet been explored? It is possible to imagine—and why not also very natural?—that when the art is pursued in a more detached sort of way, it will reveal in such hands and under such new inspiration what is not yet forthcoming. When the good that we have sometimes had in recent years advances to the best which we have not yet had, we may find the art of stained glass, with a fuller freedom towards subject matter, less tied to mere use and wont, and so-called ecclesiastical tradition (of which, of course, it is often the very opposite), flowering in some quite new and unexpected way. And that is why, perhaps, the spirit faints at the deluge of stained glass at present rained upon churches, which is not bad, but which is seldom good, is painstaking, laborious, depressing, but so little interpretative, so little responsive to our own beliefs. Yet we have seen in recent years glass painted by artists, full of promise and appreciation of the resources which are revealed when it is primarily the work of their own hands, and then the subsequent failure through want of conviction, the yielding to short cuts in production, and the consequent loss of their birthright, and with it of their own happiness as well.

In following this history of ancient glass in Winchester, so ably presented by the author, we see it to be largely a record of destruction. But we are justified in saying that thanks to the labours of men like William Morris such vandalism is hardly possible, we should think, at the present time. Insufficient notice is taken of the injury still inflicted on churches by the insertion of unsuitable stained glass in the windows. It may be that accompanying the wider dissemination of knowledge on the subject the public will exercise a more enlightened judgment in their choice, and realise their great responsibility in the matter. In that event, there will be fewer windows than at present, but they will be better, and that will be of more assurance to us than that we should control the world market in stained glass.

*By J. D. Le Couteur. London: The Wykeham Press. Price 8s. 6d.

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ILLUSTRATIONS.

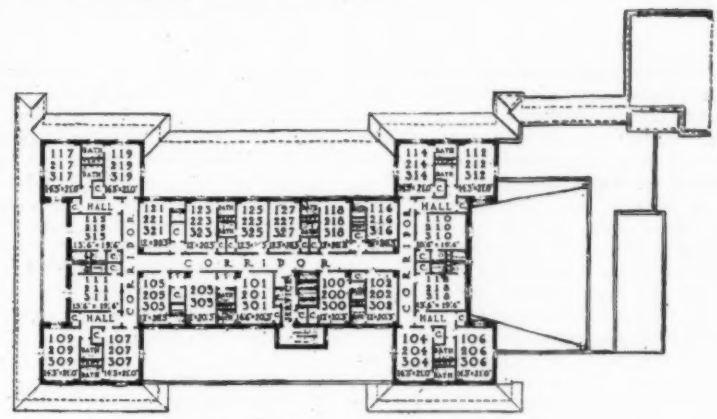
Broadmoor Hotel, Colorado.

The Pauline R.C. Chapel, Broadmoor, Colorado (Messrs. MacLaren & Hetherington, of Colorado Springs, architects), illustrated in our issue for July 30, was built partly for the use of the residents and guests at the Broadmoor Hotel, which we illustrate this week. The architects for the hotel are Messrs. Warren & Wetmore, of New York.

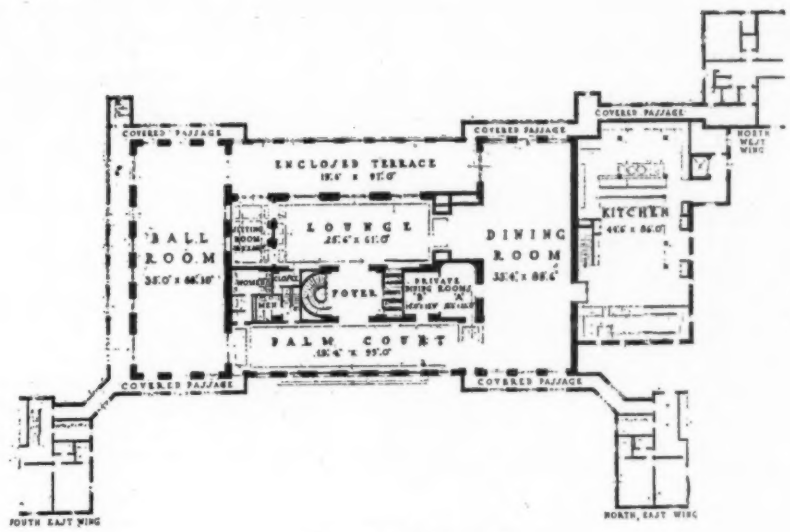
Standing on the rolling ground where the great plains break against the mountain range, the Broadmoor Hotel occupies an especially well-chosen position. From the front of the hotel one can look away many miles towards the east over the level country, while at the west tower the impressive mountains. The style of treatment chosen for the exterior of the building reflects the characteristics of the architecture of Northern Italy. The exterior walls in general are finished in stucco that is warmed by a slight flesh tint. Around the main building, just under the eaves, is a band of ornament executed in graffito tones of sepia on a background the colour of the stucco. The roofs are of red tiles that show a great deal of variation in colouring. The basement story of the main building wherever it is exposed above the ground is faced with Turkey Creek stone, obtained about forty miles from the site of the hotel. It is of a creamy pink tint veined with brown. In texture, it resembles Caen stone.

The entrance is from the east front into the lobby, with the office directly opposite the entrance. Here the decorations were inspired by the interior of the Davanzatti Palace. The walls are covered with a design painted in polychrome on a dull bronze ground, the whole toned down to an antique effect. The stair railing is of carved wood in polychrome and dull gold. The ceiling beams have painted ornament in the Italian Renaissance manner, framing small painted scenes from the surrounding country. Besides the lobby and the office of the hotel this floor contains the broker's office, barber's shop, cigar counter, shops, Turkish bath and all other features of the hotel that are of a business character. The Turkish bath is a double installation, as a complete establishment is maintained for women and another for men, so that the baths are available to all guests at all hours. Since all business is confined to the ground floor, upon which the principal entrance opens, the main floor above is left free for use exclusively as a living floor—for the social life of the hotel. This also is a ground floor, as the slope of the ground from one side of the building to the other brings this floor level with the ground on the west front, which overlooks the lake.

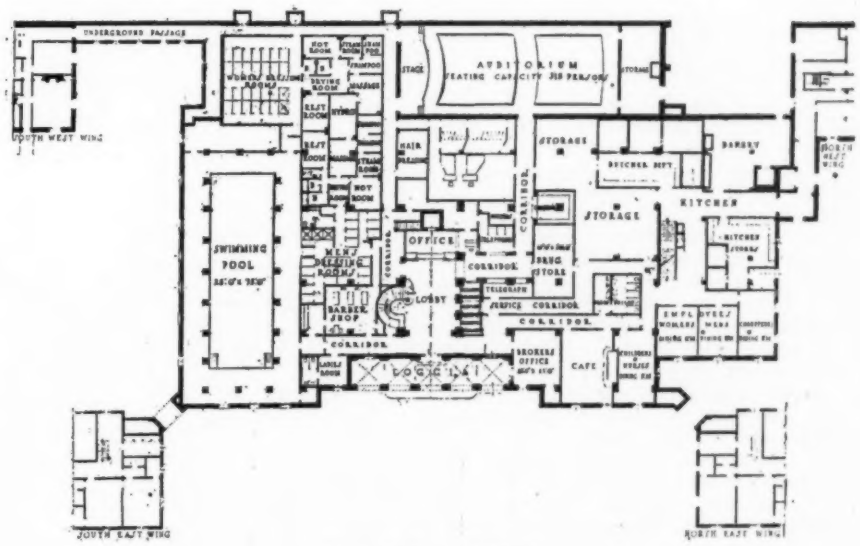
This lake, originally intended for irrigation purposes, has become the main feature of a very attractive piece of landscape gardening. A small island in the lake has been treated as a Japanese garden, and represents a complete landscape in miniature. It is reached by a foot bridge. Though trees are rarely found in a location such as this, there are a number here which add materially to the attractiveness of the grounds. When the building of the hotel was undertaken the grounds were laid out to include all the desirable features already in existence, namely, the lake and the fine old trees, which



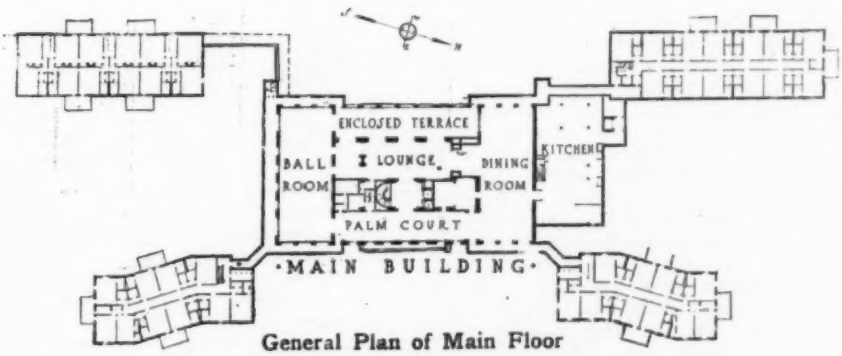
Plan, First to Third Floor, Main Building



Plan of the Main Floor



Plan of Ground Floor



General Plan of Main Floor

Broadmoor Hotel, Colorado Springs, U.S.A.
MESSRS. WARREN & WETMORE, Architects.

were incorporated in the new plan of the grounds made by the landscape architects, Messrs. Olmsted Brothers. The terrace on the lake front of the building is covered with awnings in summer and screened by lattice; here the guests may dine out of doors.

The rooms on the main floor are decorated in an interesting manner. In the lounge is a large stone fireplace, and the walls have been very cleverly painted with ornamental *motifs* and figure designs to simulate relief plaster work. In the writing-room the ceiling is of wood, ornamented in polychrome and gold, the mantel has a Sienna marble facing, and the woodwork is of Philippine mahogany. The ballroom has pilasters and entablature of marble, and the ceiling is decorated with small figure groups in low relief. In the palm court the walls have painted decorations in the Pompeian manner. This room faces the east, and is used as a breakfast-room in winter. The enclosed terrace has walls in Caen stone effect, and the ceiling is covered with a lattice that is painted in several slightly different shades of green to produce colour variation. The window draperies and the Italian silk blinds are of ecru colour. The floor is of light green cement with brown tile inserts. Covered passages surround the rooms on the main floor, and protect them from the heat in summer. These passages also give access to the wings.

The bedroom floor plans are remarkable for the large proportion of corner rooms they show. This is one of the results of building the hotel in a series of stepped terraces, which not only produces the outline desired to bring the building into harmony with the surrounding landscape, but also provides an unusually large number of especially desirable bedrooms. Furthermore, this scheme has made it possible to provide most of the corner rooms with gardens placed on the roofs of the portions of the buildings just below. Many of the bedrooms have sleeping-porches; there are about sixty sleeping-porches in all. Since clothes closets much larger than those required in a city hotel are needed in a resort hotel, where the guests must keep a considerable variety of clothes ready at hand, closets of ample size have been provided.

On the top of the hotel is a roof garden that commands a wide view over the plains in one direction and over the lower prominences of the mountainous country in the opposite direction, including a view of the Garden of the Gods.

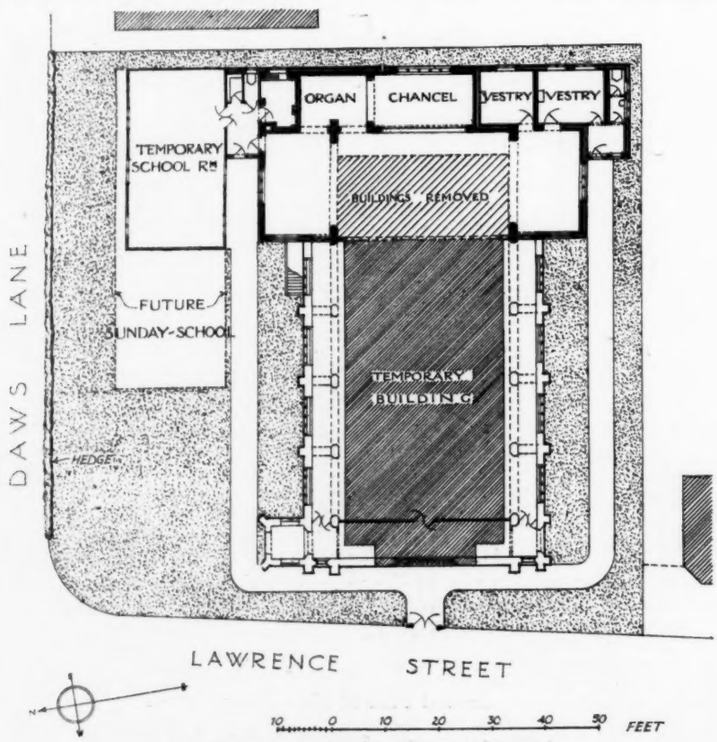
The hotel consists of the main building and four other buildings, known as "Southlake," "Northlake," "Southmoor" and "Northmoor." All these wings are connected with the central building by underground passages as well as by the covered passages at the level of the main floor. The underground passage extending towards the golf club, owing to the inequality of the ground, comes to the surface at a point not far from that building and provides a convenient means of access to the swimming pool from this direction. This pool is one of the interesting features of the hotel, being 25 ft. wide and 75 ft. long, and its walls are of ceramic mosaic. A theatre, with a stage and an auditorium capable of seating more than three hundred people, is included in the hotel.

As the hotel is open throughout the year, and the number of guests varies greatly at different times, the plan of building the hotel in five distinct, though connected, structures meets the requirements especially well. At the season when the number of guests is smallest, only the central building need be used, then, as increasing arrivals make it necessary, one section after another can be opened. The construction is of reinforced concrete frame, with curtain walls of hollow tile between the piers, and reinforced concrete floors The cost of the building worked out at 1s. 6d. per cubic foot.

New Congregational Church at Mill Hill.

The first portion of this building was opened in September. The plan shows that an unusual problem was set for the architects, as it was desired to preserve the greater part of an existing temporary hall and to carry on worship there throughout the erection of the new church. The first scheme submitted having proved too expensive, it was then decided to erect a new chancel, transepts, "crossing," organ chamber and vestries on the site already partly occupied by the vestries and organ chamber of the temporary hall, and so to plan the nave of the new church that it could be built outside the walls of the temporary hall. At the same time the new roof was constructed with trusses of an unusual curved type, contrived so that the tie-beam cleared the ridge of the existing roof by two inches. The difficulty of the problem was increased by the cramped nature of the site, which at first seemed too small to allow of the provision of 200 additional seats and the other accommodation desired, while reserving space for a Sunday school within the building line as part of the final scheme. However, the plan illustrated was finally evolved and approved, building operations were commenced on the first day of this year, and the church was opened in September without any interference with continuous services in the temporary hall, which was connected with the new building by removing the gable end. Heating and lighting arrangements have been arranged with a view to ultimate extension into the future nave and Sunday school whenever circumstances allow the scheme to be finally completed.

The portion of the new building now opened is constructed of hollow brick walls, faced with red, sand-faced, Essex bricks of picked quality, the tracing and dressings externally, as well as the internal piers and arches, being of Monks' Park stone. The whole of the internal woodwork, including the open timber roof, is treated with brown stain. The heating is on the low-pressure, hot-water system, and has been installed by Messrs. Wortner-Smith, Gray & Co. Ventilation is effected by means of inlets behind the radiators at floor level, and a louvre outlet on the ridge of the main roof. The temporary gable-end, which will be removed on the completion of the future nave, is formed of timber framing, hung with tiles in its upper portion, and covered with cement rough-cast below. The roof is covered with hand-made, sand-faced, red tiles. The new floor is laid with "terrano" on concrete. The Hendon Electric Supply Company have carried out the electric wiring, and have supplied the electric fittings. A heavy dark blue curtain, hung from a brass rod secured to the tie-beam of the roof-truss at the junction of the new and old buildings, shuts off the former, when required, and enables the temporary nave to be used for concerts and lectures. No colour is used in the interior decorations, the woodwork being dark brown and the plastered walls being finished to match the tint of the stonework. Messrs. Welstead, of Croydon, executed the leaded glazing. In spite of the very unusual nature of the building (the temporary nave being lower than the new portion) the acoustic properties are satisfactory. A new organ, pulpit, and other minor fittings are required to complete this end of the church. The builders are Messrs. Dove Bros., Ltd., of Islington, and the joint architects are Messrs. Martin S. Briggs, F.R.I.B.A., and Arnold W. Harwood, A.R.I.B.A., of London.



New Congregational Church at Mill Hill.
MR. MARTIN S. BRIGGS, F.R.I.B.A., & ARNOLD W. HARWOOD, A.R.I.B.A., Architects.

The Belgian Memorial.

We illustrate this week the memorial which has been erected on the Victoria Embankment, by the Belgian nation. The sculptor is Monsieur Rousseau.

MEETINGS.

FRIDAY, *November* 5.

Town-planning Institute.—Presidential Address, by Mr. H. E. Stilgoe. At 92, Victoria-street, S.W. 1. 6 p.m.

MONDAY, *November* 8.

Surveyors' Institution.—Presidential Address, by Mr. John Willmot. 8 p.m.

TUESDAY, *November* 9.

L.C.C. Central School of Arts and Crafts.—Mr. S. B. K. Caulfield, F.R.I.B.A., on "Our Houses: Their Planning and Arrangement." At Southampton-row, W.C. 5.30 p.m.

Liverpool Architectural Society.—Messrs. A. C. Holliday, J. H. Forshaw, W. J. H. Gregory and F. Williamson, on their experiences at the Ecole des Beaux-Arts and in some New York architects' offices. 6 p.m.

WEDNESDAY, *November* 10.

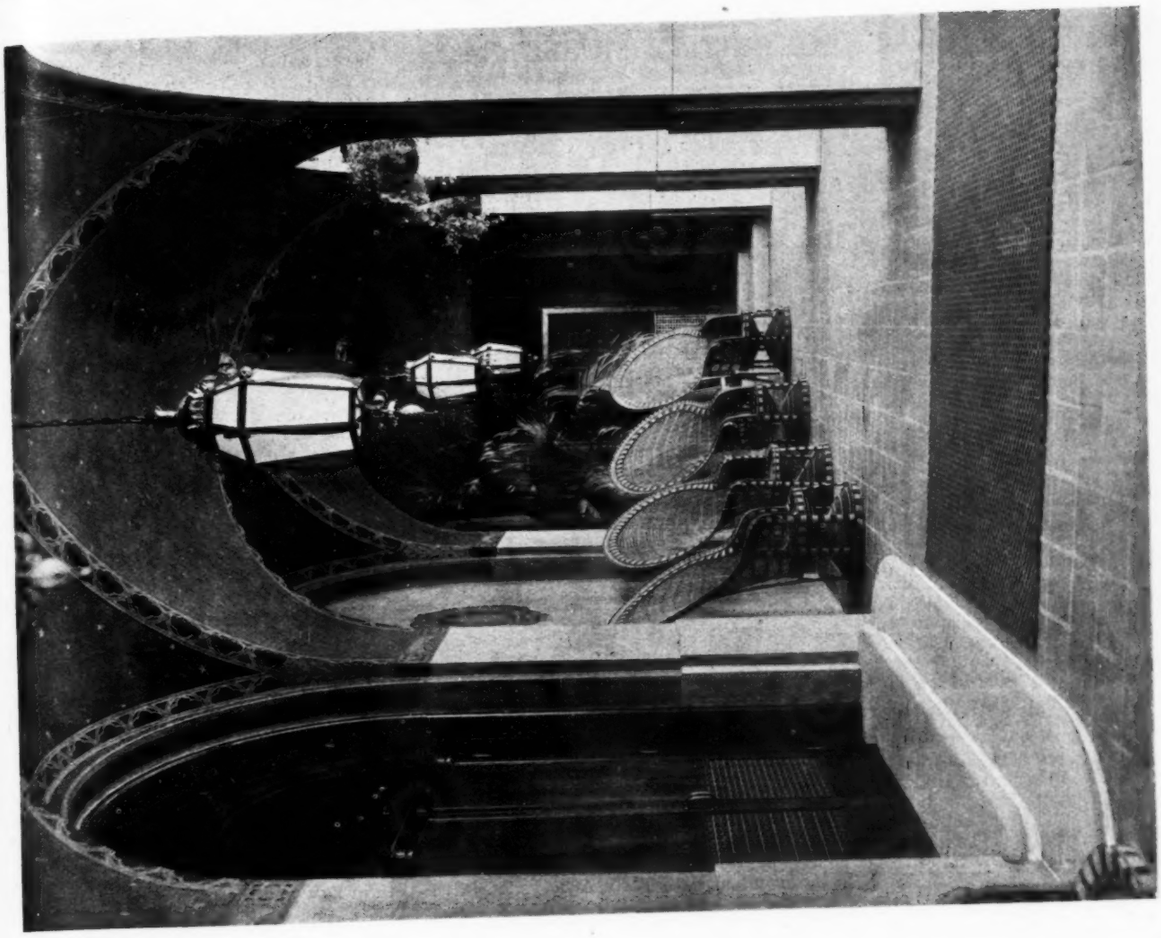
Royal Academy of Arts.—Prof. A. P. Lawrie on "Methods of Painting." 4 p.m.

British Museum Lectures on Ancient Architecture.—Sir Banister Fletcher, F.R.I.B.A., on "The Hellenic Period." 4.30 p.m.

THURSDAY, *November* 11.

Royal Academy of Arts.—Prof. A. P. Laurie, on "Modern Pigments." 4 p.m.

Society of Architects.—Sir Charles T. Ruthen will unveil the Society's war memorial, followed by the Presidential Address. 8 p.m.



LOGGIA ON EAST SIDE: INTERIOR.

LOGGIA ON EAST SIDE: EXTERIOR.

Broadmoor Hotel, Colorado Springs, U.S.A.

MESSRS. WARREN & WETMORE, Architects. (*See* p. 515)

GREEK AFTERNOONS AT THE BRITISH MUSEUM.—XI.

By W. R. LETHABY.

IONIC ART IN ATTICA AND ITALY.

LEAKE long ago said that the Ionic was in early time the national order in Athens. The best English account of archaic Athenian art is in the Catalogue of the Acropolis Museum by the late, sadly lost, Guy Dickins, who saw things freshly and wrote boldly beyond the books :—

"Until the age of the tyrants Athens occupied a position of little general importance in Greece, and remained self-centred and unaffected by foreign currents of art or politics. But with the tyranny of Peisistratos, she was drawn into Aegean and Greek politics in all directions. Peisistratos and his sons were Ionian in sympathy. They had important interests in North Ionia, and they revived the Pan-Ionian position of Delos. Ionian artists and poets crowded to their court and left inscriptions still preserved to this day (Archermos of Chios : Theodoros of Samos). It is, of course, a matter of history that art developed much more quickly on the eastern side of the Aegean, and recent excavations have shown Sparta as well as Corinth and Athens under the domination of Ionic tastes in the middle of the sixth century. The rule of Peisistratos was not firmly established until 538 B.C., and thus we may put that year as the highest limit of the importing period. . . . Some of the statues at any rate were directly imported. Parian marble now becomes general on the Acropolis. Art depends largely on its patrons, and the best patrons were the Peisistratidae. As long as they held the tyranny Ionian art was *en règle*, and the democratic revolution of 510 B.C. marks a separation from the ideals of the previous thirty years, not the least in this, that it at once gives birth to a revival of truly Attic art."

In the decade 510–500 there was an Attic revival and "a great accession of delicacy and finish." It is to the period 510–480 that the most beautiful of the *Korai*, the company of statues of maidens found on the Acropolis, belongs. This early Attic art came to an end with the Persian sack of 480. This phase of art has been recovered very fully by the excavation of the Acropolis down to the rock surface which was undertaken in 1884. Foundations, details and sculptures were discovered of archaic temples as well as the *Korai*, and an enormous quantity of pottery. "A lost chapter in the history of art has hereby been recovered from the rubbish heap of the Persians—an important and attractive one, for it forms the introduction to the great Attic art of the fifth century. . . . A fixed date was gained, as none of the objects could be later than 480. . . . Our historical conception was revolutionised, and the period of red-figured vases had to be pushed back two generations, its beginning being from the time of the tyrant Hypias before 510. . . . The first decades of red-figured painting mean a complete emancipation of the Attic spirit of art and its liberation from antique bonds in drawing and composition. . . . Through the whole history of Greek art painting was the directing art, and not sculpture. We distort the picture of Greek art

FIG. 1.

by not only separating sculpture from architecture, but from painting, which always leads the way." (Michaelis.)

There is in Athens an architectural fragment of great significance for the dating of the Ionic works which preceded the Persian invasion. This is the cornice of an altar of Apollo, inscribed with a dedication by Peisistratos, son of Hippias (P. the younger, 527–510). It is about 7½ in. deep (Fig. 1). "The letters are cut with beautiful sharpness, a little under an inch high, and were originally painted." This, and a delicate leaf moulding below, are very like fragments from Naucratis II in the B.M. The margins of the petals were brought together at the top in loops, as in the normal Lasbian-leaf moulding. This treatment is found also at Ephesus (illustrated by Wood) and at Delphi—what may be earlier examples are painted on a sarcophagus from Klazomenæ in the B.M. (Fig. 2). The dot-and-stroke pattern on the

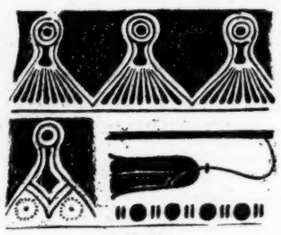


FIG. 2.

same sketch must be a painted version, perhaps the origin, of what in carving we call "bead and reel." That the leaf pattern is only another variety of lily-work may be seen from the upper painted leaf-pattern.

THE INWOOD CAPITAL.—A most precious Ionic capital of the Early Attic period in the British Museum (No. 443) has not received the consideration due to its remarkable qualities and date. Inwood, who brought it from a ruined church near the Ilissus, Athens, illustrated it to an enlarged scale so as to bring out its exceptional delicacy. This, however, was exaggerated, together with a suggestion of perfect precision in workmanship. Inwood pointed out the fact that the channel of the volute was a convex and not a concave curve, and he thought that it was "perhaps sufficiently important to be considered another species of Athenian Ionic capital." From its small size it has been doubted whether it may not have been the capital of a monumental pillar rather than part of an edifice (see Catalogue), but most, if not all, of the Ionic stele capitals now known to us have painted instead of carved decoration and are still smaller in scale. This capital would have belonged to a column 9 or 10 ft. high. The fact that there is no dowel hole in the abacus is also against the stele theory.

When Chandler visited Athens in 1764 two churches were standing by the farther bank of the Ilissus beyond the Stadium. One of these, "a solitary church on the left-hand at a distance," was dedicated to *St. Peter's Crucifixion*. "It was of white marble . . . a recent and mean structure, with fragments and columns and marbles lying in and about it. We found there an Ionic capital with the marks of the compasses used in forming the volute." The site seemed to be that of a temple which he thought might be that of Eucleia mentioned by Pausanias, but this identification is doubtful. It is possible that the capital he saw was the one taken out of the wall of the same ruin by Inwood; in the dark of the interior the indents of the flower might seem like compass marks. Inwood described the site as a sheepfold with "a few stones lying on the ground within that seemed as if they might have once belonged to an ancient building." The capital was built into a wall. The evidence is in favour of our capital having belonged to some beautiful little suburban temple built about 500 B.C (Fig. 3).

Comparison with the painted stele-capitals recovered from the "Persian dump" shows several interesting parallels in the form of the return ends, &c. One of the stele capitals, indeed (illustrated by Durm and reproduced in Mr. Bell's book, p. 150), was similar in the double curve of the connecting member between the volutes and in the space which divides this member from the petal mouldings. From this analogy I am able to restore the middle pendant palmette and to modify Inwood's restoration in some other respects. It was a characteristic of the early Attic capitals to have a space between the volute and the petal member in which the little volute-palmettes lay without lapping over the "eggs." Notice how the upper fillet of the volute member is interrupted in the centre; this is a survival from the vertically springing volutes when it was not yet accepted that the pair of volutes should be joined across the top. Perrot illustrates a capital of the same intermediate class from Delos (perhaps Attic ?). The level cutting off of the central standing palmette is an inheritance from the archaic and so are the rosettes in the volutes. The flowers are still large and essential; in this respect the capital is a member of the frontal lily type, of which the Ephesus capital is the most uncompromising known example. Further, the long spiral tendrils throwing off palmettes closely resemble vase decorations c. 500 B.C. It

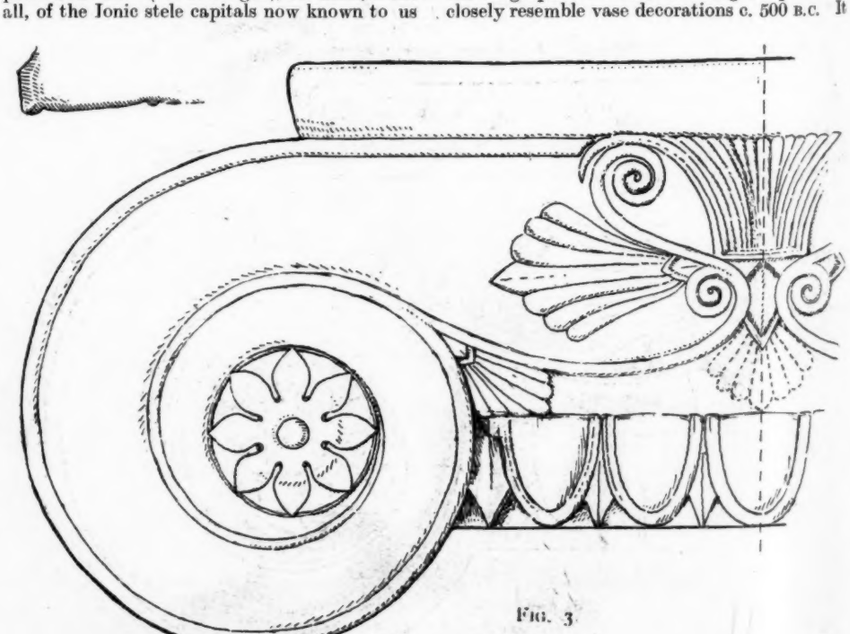


FIG. 3

is a clear case of taking over painted decorations into carving. These "palmettes" are themselves still thought of as lilies and not as mere ornament. Such lily-work had some sacred character. We may recall the lily-work of the pillars of Solomon's temple and its internal decoration: "And the cedar of the house within was carved with knops and open flowers: and he carved all the walls and the house round about with carved figures of cherubims and palm-trees and open flowers." The Ionic capital itself must have been apotropaic; it was no decorative invention, it had a magic appeal. The Inwood capital is an architectural treasure and it should be treated with more ceremony. Some day, when the wonderful collections of the Museum are re-arranged so as to gain more support from one another, I should like to see this capital adequately mounted on a length of shaft forming a part of an early Attic group. The carved "egg and tongue" should be noticed. I do not recall another so early an Athenian example of this "decoration." Puchstein thought that Ionic capitals were not adopted for buildings in Athens before the fifth century. He also held that the carved egg and tongue member was brought in at this time. He did not illustrate Inwood's capital in his elaborate essay.

THE HEKATOMPEDON AND SUNIUM.—One of these stele capitals has the elegantly-curved line under the abacus which also appears in the great capitals (Fig. 4) now to be described. Fragments of these were found close to the stylobate

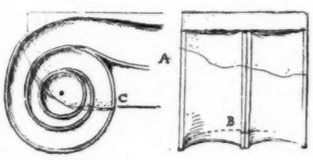


FIG. 4.

of the east front of the old Hekatompedon on the Acropolis. In the general proportions and in the large rosettes which must have occupied the eyes of the volutes this capital is closely related to Inwood's. The fragments (illustrated in Wiegand's "Poros Architecture") are, unfortunately, very imperfect. The caps were about 6 ft. long and 3½ ft. wide and the rosettes were inserted with pins in circles about 9 in. in diameter (Fig. 4). There is not enough evidence to say exactly what were the facts at A, B and C, but enough remains to show that it must have resembled Figs. 3 and 5 in general type. These Attic rosette-volute capitals were obviously in a line of descent from rosette capitals such as those at Ephesus before described. I should like to suggest to any British student working in Athens that a revision of Puchstein's study of the Attic Ionic type would be an interesting subject to undertake.

I sketched Fig. 5 from a fragment in Berlin. Puchstein gives it with more accuracy. The

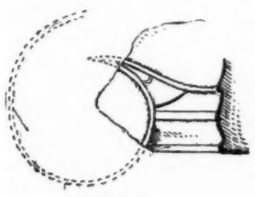


FIG. 5.

cyma moulding had a delicately painted leaf pattern and the palmette must also have been painted on the blocked-out form. The "volute" was slightly dished out with a fillet around the edge. It seems from what is left that this could not have been continued as a spiral, but that it must have finished as indicated. Either the form was occupied by a large painted rosette or by a painted spiral. This fragment is of high interest as a painted capital on the way to become a carved capital, and also because its parts were disposed nearly in the way which became general.

The importance of this fragment has recently been greatly increased by the careful exploration of the site of the temple at Sunium, a neighbour city of Athens. Here sufficient remnants were found to permit of the theoretical restoration of a remarkable early Ionic structure built at the angle of an enclosure in such a way that there were external columns on only two fronts—ten on one front and thirteen on the other. There were also two pairs of columns in the cella. The columns were five Greek feet apart and probably 20 in height. The capitals closely resemble that last described except that the spiral was cut on the volute; they are nearly three feet across the face and more than a foot deep; the return of the volute is like Inwood's capital. (Fig. 6) In the bed is

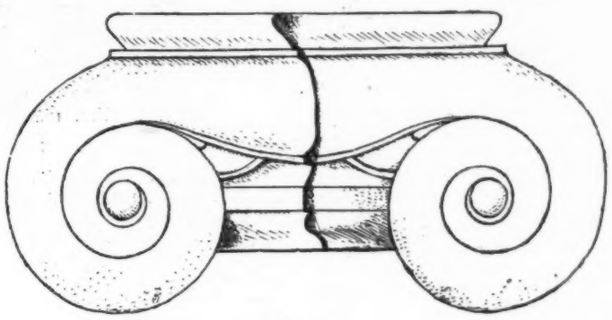


FIG. 6.

a square hole for a dowel. (So also the Ilissus and Nike capitals, but not Inwood's.) The corona and the cornice were very thin and projected far like that of Naucratis II. The epistyle not only had a moulding on the top edge, but a *fascia* band as well; the first appearance known of this feature (compare the altar in the sculptured frieze of Delphi). The roof tiling had a series of simple palmettes along the ridge. Altogether the recovery of this structure is of the very highest importance for the history of early Attic art. Now it has been found we can see that its "style" is *exactly* what might have been predicted (*Ephemeris*, Athens, 1917).

THE ILISSUS AND NIKE TEMPLES.—When Stuart and Revett visited Athens a small Ionic temple incorporated into a domed Byzantine church stood near the Ilissus and this they fortunately measured and drew. (The original view made by Stuart is in the R.I.B.A. library.) It had been mentioned still earlier by Pococke, and Chandler says: "Going from the stadium . . . you have before you a temple of white marble seated on a rock by the side of the river. It has been transformed into a church named St. Mary on the Rock." It was abandoned as desecrated after Roman mass had been celebrated in it in 1672; the vaulted roof and traces of paintings are mentioned and after referring to the view in "The Ruins of Athens," Chandler adds: "The fabric has sustained some damage since; the exterior column next to the Ilissus in the front being ruined and the capital lying on the rock much maimed. The substructure of the opposite end is so impaired that it is likely a further downfall will soon ensue; then the materials will be removed as wanted and the site in a few years become hardly distinguishable." A beautiful drawing made by Pars at this time showing the capital lying on the ground is in the B.M. Print Room. The capital had a square dowel hole in its lower bed like the Sunium capitals. Stuart and Revett say that the work of the temple was "of exceeding delicacy and perfection." On assigning Greek values to the dimensions which they give, it seems that the length from centre to centre of angle columns was 40 feet, along the cella wall it was 30 feet. The width of the platform was 20 feet, the height of columns 15 feet, the depth of the pronaos was 10 feet. There thus seems to be no doubt that it was set out with "round dimensions." Lord Elgin, in the evidence regarding his marbles, refers to the destruction of the temple. Inwood, in 1818, found "a small, neglected modern Greek church that appears to have been the site of a temple. Two Ionic capitals were also [formerly] on the same site, lying inverted upon the ground, which had been presented to Mr. Gropius then residing at Athens, and one in the Elgin collection is of the same size and design. These were, there can be little doubt, a part of the ancient temple on this spot." Inwood collected an "antefix" from the church, which is now in the British Museum (Fig. 7).

It is shown as an antefix, but it is too large to have been anything other than the central acroterion of the pediment of such a small building. (Compare the acroterion of Naucratis II in part vi). Only a reference to Inwood is given, but I have little doubt the fragment originally belonged to the Ilissus temple. The style suits; the old visitors to the site. Pococke and Chandler, noticed the whiteness of the marble, with which the temple was built, and this fragment seems to be of Island marble quite different from the native material of grey hue. Acroteria began as I have suggested as "Horns of Consecration"; they became

FIG. 7.

"Palmettes," that, is lilies in profile. On the Sunium structure just described there was a small palmette on every ridge tile, so there was at Aegina. At the Parthenon the antefixæ along the eaves were also profile-lilies. All these, as I have frequently said, must have been apotropaic. The acroterium at Aegina restored by Furtwängler was not a single lily but a whole lily-plant.

Inwood illustrated the capital mentioned above and in the Elgin collection as being from the Ilissus temple, but it has lately been shown that this capital in fact belonged to the Nike temple. In a former study of the subject I showed that the details of the two temples were almost identical, and that we might suppose that both were the work of one architect. It has been customary to date the Ilissus temple c. 450 B.C., and the Nike c. 430, but the close resemblance of the two must be considered. Further, an order to Callimachus to build the Nike temple has been found on an inscription which is itself thought to be of a date c. 450. Again, great arguments have been made as to the relative age of the Nike temple and the Propylaea with which it is so closely associated. Michaelis supposes there was a delay of twenty years after the decision to

erect the little Nike temple. To me it seems plain that the Propylaea (437–432) was planned in relation to the Nike temple, one wing being an open loggia facing it. I should feel little doubt that the Nike temple was built soon after 450, were it not for its sculptured frieze which certainly seems later in style than the sculpture of the Parthenon. Here again there is cross evidence, as the Ilissus temple had a sculptured frieze which appears to have been equally advanced in style. Stuart and Revett showed such a frieze, and explained that "the figures represented are copied from a fragment found at Athens which may possibly have belonged to this place since its height and thickness is such as exactly supplies the space." Following this hint, a German scholar has associated several other slabs and fragments to reconstitute a frieze in an elaborate paper in the Berlin *Jahrbuch*, 1916. This frieze was on slabs much thinner than those of the Nike temple, and consequently they had all disappeared. This very fact suggests that they might have been applied some time after the building had been erected.

The Ionic capitals of the Propylaea closely resemble those of the two little temples. There have been long arguments as to priority, but nothing seems provable, except that all three may be taken together as representing the Ionic norm of the Periclean age. The Propylaea seems to have been begun about 437 on the conclusion of the Parthenon. One point that is made much of in the arguments for the lateness of the Nike temple (Furtwängler even says 425) is that the volute palmettes overlap the eggs. It is shown thus in an exaggerated way in the published drawing, but in fact the over-lapping is very little, as I have made a little sketch to show from the original (Fig. 8).

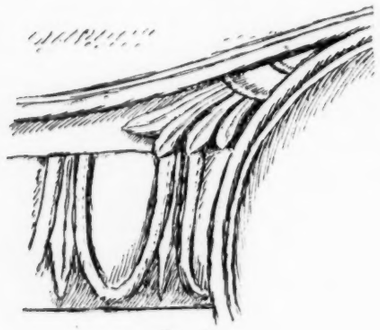


FIG. 8.

The eggs and tongues, too, are long and of an early type.

I can bring forward a new authority for the Ilissus temple. Inwood says that two of its capitals had been given to Gropius. Now I find, at the R.I.B.A., a drawing of an Ionic capital of the type we are considering inscribed—"From Gropius"; further the distance from centre to centre of the eyes is given as 1 foot 8.6 inches, and this agrees very exactly with Stuart and Revett's dimensions for the Ilissus temple. There are further points of agreement, but on the other hand the treatment of the side of the volute is different from what Stuart and Revett show, and their version is substantiated by the little sketch of Pars. Again, Donaldson shows a considerable space between the volute palmettes and the "eggs," and his drawing is clearly so accurate that it is to be trusted. Possibly there were slight differences between the two ends of the temple. In any case I am able to give in Fig. 9 a sketch of a capital which on the palmette test must be the earliest of this series.

The Ilissus and Nike temples were decorated with similar painted patterns (see comparison in Bötticher). Stuart and Revett noted the painted palmette band from the former (Fig. 10).

FIG. 10.

Le Bas gives details of the latter. In the coffers of the lacunaria were stars. A sketch by Nesfield at the R.I.B.A. shows similar stars from the Propylaea, bright red on green. The Propylaea capitals had painted eggs and tongues in their abacus members, and this must have been the treatment in all three cases. The Ionic architecture of the sixth century in Athens had painted decorations; during the fifth century a translation into carving was progressive.

The three capitals of this group are very like the examples shown in Figs. 5-6. Still it is difficult to suppose that the little Ilissus temple set the exact type for the splendid Propylaea. If we could suppose with Cockerell and Penrose that there were Ionic columns in the Opisthodomos of the Parthenon, that might solve the problem, or perhaps the Ilissus temple was an earlier work of Mnesicles, the architect of the Propylaea. This type it must be confessed is dull as compared to the pre-Persian series. Those are so experimental, clear, and graceful, that I know nothing like them in spirit except some works of the transitional mediæval period. Both belonged to a spring morning of

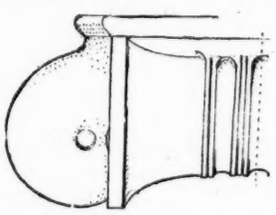


FIG. 11.

art, and the Greek works like the Gothic might well be called Transitional. (Fig. 11 shows the inner angle volutes of the Nike temple.)

(To be concluded.)

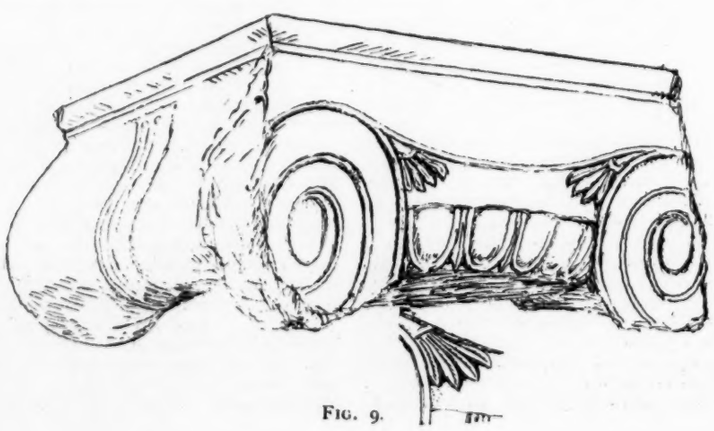


FIG. 9.

EXHIBITION NOTES.

Spanish Art at Burlington House.

THE public should greatly appreciate the opportunity now given at Burlington House to study Spanish art. Besides the pictures by old Masters there are a considerable number representing modern art which show clearly enough that the Spaniard need have no fear of coming in second best in modern achievement. As we pass through the first gallery, with its dignified sobriety of colour, and further on pass in review the cold austerity of religious pictures, the mellow colour and rich detail of courtly personages, the crowded detail of royal scenes, the majestic simplicity of fine portraits, and then reach the modern work with its force and brilliance of colour, we feel that we have realised a panoramic vision of Spanish painting of a convincing and impressive kind such as is little likely to be surpassed in this country. The student of Spanish art will be able to make many interesting comparisons, recall and emphasise many points. But the supreme value of such an exhibition is something above mere education in dates and schools, for it shows how fine expression of beautiful form and colour may be achieved as the heritage of culture and tradition as passed on from one generation to another through centuries of patient work, and that there is a wide and spacious world of art which includes the meticulous rendering of beautiful detail, the broad touch of vivid life, the subtle beauty of cold grey paintings and the bravura of gorgeous colour. We have in the exhibition almost every shade of achievement in painting, old and new, and we have hints of what the Spanish nation has done in glorious tapestries and furniture and sculpture. The examples of modern sculpture include some fine work, and two of the best of these are suggested in our sketches on p. 509. The bust of Paganism by Pinazo is an exceptionally able work of a quite arresting kind.

Amongst so large a number of pictures worth noting it is impossible for us to do more than remark on certain things which claim attention on a first inspection. Beginning with Gallery I we see a very fine head of Saint Anthony (51) by Ribera, which is perhaps as perfect of its kind as any portrait has ever been. In No. 33, Margaret of Austria, we note how an incredible amount of detail has been subordinated to a fine breadth of decorative effect, by Pantoja. In Gallery II, we have a notable collection of works by El Greco, and the casual observer would doubtless think that his portrait (36) suggests the production of such pictures as the St. Sebastian (42). The south rooms contain some fine decorative paintings. Nos. 17, 18, and 19 are very beautiful, and the oblong upright panel (15) San Vicente, is a delightful production enclosed in dainty gilded Gothic tracery. Gallery III is glorified by a magnificent tapestry some 20 ft. long. Here are three Velasquez pictures; the "Dead Christ" (74), by Alonso Cano, and the "Inspiration of Saint Jerome" (97), by Cabezalero, should also be noted. The fourth Gallery, with the terrible carpet and wall hanging, and several paintings by Goya, we found the least attractive in the exhibition. In Gallery V there is one picture of very special value, and that is "The Alberca-court in the Alhambra" (145), by Portaño. Surely no one has ever painted this familiar scene with more superb charm. Though it is comparatively sober in colour it is far superior to many gorgeous renderings of the subject. Gallery VI is very notable for fine tapestries, carpet, admirable sculpture, and the Velasquez portrait (68). What a wonderful bit of painting this is, notwithstanding its bad preservation! Well displayed sculpture is placed round the walls of the central hall, and there is more sculpture in the lecture room. In the lecture room and the remaining Galleries we have many paintings by modern artists which will find a large circle of admirers. Perhaps we could have no better antidote to the depression of winter weather than the royal riot of colour in some of these Spanish pictures. The architectural gallery is positively joyful! Curiously, the hanging of these pictures has greatly reduced its appearance of size.

THE LONDON SOCIETY.

THE EXTENSION OF PARIS.

AT a meeting of the London Society, held at John-street, Adelphi, on Friday last week, Monsieur Louis Bonnier, representing the Préfet de la Seine, delivered a lecture entitled "L'Extension de Paris." It was arranged that Sir Aston Webb, P.R.A., should occupy the chair, but in his unavoidable absence the position was filled by Mr. R. W. Granville Smith (Chairman of the Improvements Committee of the London County Council).

In the course of his address, which was in French, Monsieur Bonnier, after referring to the way in which the great cities had gradually drained the population away from the country, said that the advent of these formidable masses of population demanded a new school of therapeutics and surgery. The machinery of the town being much more complex became more fragile and at the mercy of the slightest mishap, such as an abnormal flood or an unexpected strike. It was only at the end of the eighteenth century, he said, that public opinion began to take an interest in the beautification of Paris, the first actual plan being prepared by Verniquet, in 1790. The efforts of the various periods up to the time of Napoleon III who, with his Préfet Haussmann, dreamed of the complete transformation of Paris, were still the wonder of the world yet they had become quite insufficient for Paris of the present day. The advent of the motor vehicle created requirements which could not be compared with those of pre-war days. What would be the state of affairs when normal conditions were re-established, seeing that France possessed only one motor for every 400 inhabitants, while the United States had one for every 14 inhabitants? He suggested that a strict regulation of vehicles would be necessary in the future, and that it would be necessary to consider the suppression of heavy vehicular traffic in the centre of the city, the reduction of footpaths for the benefit of the roadway and even the removal of the stalling or the terraces before the shops and cafés which gave Paris so much character.

Monsieur Bonnier then described the various studies they had made of the movement of population, &c., in Paris, in order that they might be able properly to consider the probable needs of the future. They had come to the conclusion that it was necessary to include in the City of Paris any neighbouring communes with more than 100 inhabitants to the hectare, and of the remaining districts, which they considered as Greater Paris, those where the inhabitants numbered between 10 and 100 to the hectare. Though the lowest figure of ten to the hectare was arbitrarily selected, they found it was justified by later experiments, and it was an undoubted fact as soon as the figure of ten per hectare was exceeded then for the first time the influence of Paris began to make itself felt.

The lecturer showed two cinematograph films, one showing the successive development of Paris, and the other of its suburbs during the course of the nineteenth century. The agglomeration of Paris, he said, covered a total area of 49,483 hectares bordering on the Département de Oise and Seine-et-Marne. In 110 years the area had increased in the proportion of 1 to 14.4, and the population 1 to 7.9. They had tried to find out from their investigations what would be the population of Paris 50 years hence, and came to the conclusion that it would be 14,300,000 inhabitants.

Efforts were being made for safeguarding the most precious monuments of the past in the City of Paris; both France and England, he said, were countries the soil of which, in addition to the natural riches, had clothed itself with an incomparable robe of buildings of many descriptions, which constituted a national treasure that it behoved us to safeguard and keep at all costs. These monuments of the past marked the character of the town and determined the pivot of its embellishment. Though sometimes they were cause of difficulty to the town planner, yet they could be made a pretext and a reason for ingenious and picturesque arrangements. Nothing was so commonplace as the things that arranged themselves too easily. In Paris they were preparing an inventory of all the ancient monuments. Referring to the recent Competition for a Plan of Paris of the Future (reviewed and illustrated in *The Builder* for June 18 last), he pointed out that it was impossible to undertake the improvement of a city without first having explored all the sources capable of furnishing suggestions. From the most grandiose schemes or the most fantastic one could always gain some inspiration. He referred particularly to the points on which the competitors were unanimous, such as the necessity for reducing immediately the density of the population and bursting through the narrow boundaries which made Paris the most overcrowded of the great capitals. They all agreed also that the industrial population should be gradually brought back again to the north of the City, leaving the intellectual quarter to the south; that more radial and circular lines of railways were needed; and they were agreed as to the necessity for the electrification of the railways, the removal to a distance of workshops, carriage depots, &c., the reconstruction of roads and the creation of a vast system of canals to assist in regulating the river floods. They suggested also provision of great areas of playing fields and new open spaces, the undesirability of tramways in the interior of Paris, the necessity for the co-ordination of the means of public transport, and the removal to the outskirts of crowded and unsatisfactory central markets. Some competitors suggested that the improvements should be secured by driving large and costly avenues from north to south and from east to west; others that similar benefits could be obtained by better organisation and stricter regulations which might be progressively coercive. Probably a combination of the two would be found to be the best solution. Though many happy ideas were evolved from the competition, yet even in the best schemed there were some deplorable ideas. He spoke strongly against the theory of the isolation of ancient monuments, pointing out that people were apt to forget that they had been designed for the particular position that they occupied. He objected also to the idea that it was necessary to surround ancient monuments with buildings that were supposed to be in harmony with them; nor did he consider it possible to rely on the judgment of administrative commissions in these matters. The great architects of the past could never have executed their *chefs d'œuvre* if a dozen serious gentlemen had been charged to lop off the faults with which they were happily endowed.

In the evening, Monsieur Bonnier was entertained to dinner at the Waldorf Hotel. The Rt. Hon. the Earl of Crawford and Balcarres, P.C., F.S.A., presided, and amongst those present were Sir Reginald Blomfield, R.A., Sir Wm. Wayland, Sir Arbuthnot Lane, Sir Wm. Davison, Mr. John W. Simpson (President R.I.B.A.), Mr. Paul Waterhouse, F.R.I.B.A., Prof. S. D. Adshead, F.R.I.B.A., Mr. H. R. Aldridge (Secretary, National Housing and Town-Planning Council), Mr. W. R. Davidge (Housing Commissioner for the London Area), Mr. Edwin T. Hall, F.R.I.B.A., Mr. H. J. Leaning, Mr. Barclay D. Niven, F.R.I.B.A., Mr. Frederick Shingleton, Mr. R. W. Granville Smith, Capt. Lyon Thomson (Westminster City Surveyor) and Mr. Raymond Unwin, F.R.I.B.A.

After the loyal toasts, proposed by the EARL OF CRAWFORD, had been honoured, Sir REGINALD BLOMFIELD proposed "The Prefecture of the Seine, coupled with the name of Monsieur Louis Bonnier." Monsieur Bonnier, he said, not only represented the Préfet de la Seine, but was also President of the Société des Architectes Diplômés par le Gouvernement, of Paris, and was himself a very distinguished artist. Amongst his many onerous and responsible duties was the supervision of the plantations and promenades, which were amongst the chief glories of France; both in Versailles and elsewhere those plantations were works of art. In almost any old country town in France one could take refuge in the shade of groves of trees. Once such things existed in England, but they disappeared before the Gothic revival and the last kick was given them by the Borough Engineer. He often wished Monsieur Bonnier were carrying out his duties in England, and he hoped that the work being done in the cemeteries of France might go some little way towards putting these things in a better position at home. Monsieur Bonnier was also responsible for the control of all the civic and municipal architecture of Paris, and that was in itself a pretty large order. In London there was no single body carrying out work such as that for which Monsieur Bonnier was responsible in Paris In this country there were the Office of Works and various municipal bodies carrying out such work. He would not say a word against the very capable officers of these bodies, but they were all battling together in the arena and heading off each others' schemes. The result was that good schemes were mutilated and bad schemes were carried to such a point that any good scheme would be impossible in the future. That was not satisfactory and he felt there ought to be somebody in this country with powers equivalent to those of the Préfet de la Seine. He still thought the expert adviser had his place, and this was exemplified by the Fine Arts Commission in America.

MONSIEUR BONNIER, replying to the toast in French, said he came to England to get the benefit of experience gained in this country, and he was very proud of the cordial welcome given him. In France the work of improvement in London was carefully followed, but they were mostly interested in English garden cities.

MR. PAUL WATERHOUSE, speaking partly in French for the benefit of the French guests, said he had frequently visited Paris during recent months, and had formed certain comparisons between that city and London—not comparisons of affection, because he was a wholehearted lover of London. It was the habit of Englishmen to realise that Paris was a city which had done all the things we were trying to do—we need not say of Paris, "It will be a nice place when it is finished." In Paris one had a sense of accomplishment all the time. He did not think we ought to copy everything in Paris, and he sometimes felt that the great concourses of boulevards were not things to be imitated in London, as he felt our traffic system did not admit of that method of confluence. There were, however, many things in Paris which might with advantage be imitated in London—for instance, to turn to a very small matter, our Underground Railways might place maps outside the stations which actually conveyed information; in addition to the names of the stations they might give the names of the streets, so that one could get an idea of the locality in which they were situated thus imitating the Parisian system. With regard to the suburbs of Paris, he was impressed by the large gardens attached to many of the houses, which, although within suburban distance of the city, were more like country houses. A friend who lived in one of these charming places informed him that he only lived there in the summer and that the house was empty in the winter. This seemed to the speaker to be a strange misuse of ground, and one which in this country would receive but little sympathy. There was a wonderful absence of mistakes in Paris, and one knew that everything was planned; there was a sense of plan, plan, everywhere. How different from London! He confessed that he rather missed the archi-

lecture of uniformity in London. He used to feel that every house in London did right to stand by itself and have its own character, but there must have been a great charm about "terrace" architecture. In looking at the sad remains of Nash's Regent-street, he could not help thinking that the whole vista of that street and many other parts of London that were designed on the same principle of continuity must have had an extraordinary beauty. Some day we should make a great attempt at the renewal of terrace architecture. He felt that these little superficial differences were but as nothing to the differences between Paris and London of an inward character. We sometimes said that London was the market of the world; but Paris was a *ville de province*. The patches of green in London had given rise to the expression *Rus in Urbe*, but Paris was a town in the country—*Urbs in Rure*. On a small island the tendency was for the city to become inimical to the country, whereas with Paris (a town on a vast continent with a great and beautiful country all around it) what wonder that that noble country invaded the sentiment of the town? He was not talking particularly about the gardens to be found everywhere in Paris, or the trees along the boulevards, but he was referring to an inner spirit which seemed to pervade the place. The very horses in the streets were country horses, and they drew country carts.

CAPTAIN LYON THOMSON said he was afraid our insular spirit required a little stirring up. In Westminster, with a view to paying a little compliment to France, they had changed the name of York-street to "Petty France," to record the fact that it was the place where French merchants used to congregate. He regretted to say, however, that a proposal of his that the City Council should fix a small tablet in the street to record this fact had been turned down because it would cost a few shillings.

GLASGOW ARCHITECTURAL CRAFTS MEN'S SOCIETY.

AT a meeting of the Glasgow Royal Technical College Architectural Craftsmen's Society, held in the College on October 22, Mr. J. C. Bannatyne, President, in the chair, Professor Charles Gourlay delivered a lecture on "Our Priceless Heritage." After referring to the changed outlook of the craftsman at the present time from that of twenty-five years ago, the lecturer urged the members to hold fast to their principles in the sure hope that the days would return when the former high quality of workmanship would be valued at its true worth. With the object of indicating what a priceless heritage the young architectural craftsman had when he entered upon his lifework in the city of Glasgow, a series of views of Glasgow buildings was shown and commented upon. In conclusion, Professor Gourlay recommended the study of architecture by camera, pencil and pen, so that all might be led to value more highly than ever the architecture—designed with beauty and built in truth—which Glasgow contained, and thus become imbued with the desire to do their part in handing down to posterity that good tradition received from their fathers.

RECONSTRUCTION OF BELGIAN VILLAGES.

By GEORGE CECIL.

AT the time of the Armistice (nearly two years ago), there was scarcely a town, townlet or village in southern Belgium which had remained untouched by German shell-fire. Many, in fact, were quite blotted out, amongst them being Ypres. Half the villages were mere dust-heaps; while the sites of others were marked by scattered piles of bricks, twisted iron-work, splintered rafters, and a little broken furniture. A year later this sad state of things remained unchanged, for Belgium had not had time to think about recovering herself. Besides, her artisans had fled to France and every sort of manufacture was still paralysed. Last spring, however, Belgium began to return to her normal busy life, and by the beginning of summer the patch-work houses which had served the stricken inhabitants, *faute de mieux*, since the Armistice, gave place to new ones.

Many of the strange shanties which had been used during the war, and for some time after, contained little of the original structure. Only part of the walls remained standing, and these were bolstered up with beams taken from other damaged houses, sheets of corrugated iron filling the gaps. Oiled paper took the place of glass; sacking served as blinds; and the roof—well, this often had to take care of itself if material ran short, as it generally did. Indeed, the man who succeeded in getting together enough corrugated iron to keep the rain out esteemed himself lucky above all other Belgians. A quantity of lumber also was used, with the result that half the houses were a cross between a log cabin and Robinson Crusoe's hut. Much of the lumber was the householder's own property, but a good deal of it was "transferred" from the nearest dump.

When building operations recommenced there was so great a scarcity of bricks that substantial houses were out of the question. This, however, did not deter either the builders or their patrons. There was enough concrete for the ground floor, for the verandah floor, and for the flight of steps leading up to the hall-door—a flight of steps being dear to the average Belgian heart. So, in an incredibly short space of time, two-storied wooden villas were erected everywhere, and very curious-looking affairs they are, with their red, blue and green tiled roofs and crudely-painted exterior walls, the favourite colours being pink, yellow and chocolate brown. Sometimes the village architect's fancy runs most riotously in opposition to the canons of good taste, and the most extraordinary conglomeration of colour is to be seen. All the hues in the rainbow, in Joseph's coat of many colours, and in the paint-box, may be crowded into a few square yards. The greater the variety of tints the greater the owner's delight. Sometimes the roof is curiously shaped, the upper part being sharp-edged, in the Chinese fashion, while the lower part takes a wide curve. At either extremity is placed a large china animal, usually a cat or a cock.

During this summer the brick-making industry was well under weigh, with the result that brick-built houses have sprung up everywhere. Impossible though it may seem, small houses have actually been erected in as short a space of time as three weeks. These consist of a dining-room, sitting-room and kitchen combined (in the Belgian villages the kitchen is the most important room in the house), and a bedroom on the ground floor, and two upper bedrooms—the ground floor space being 28 ft. by 14 ft. This "Arabian Nights"-like achievement is owing to the fact that the brick-makers and the builders and carpenters are kept working every hour of daylight, from sunrise till long after sunset. The breakfast, lunch and dinner intervals are cut down to the shortest possible limit, and everybody concerned in the building of the house is paid a bonus if the work is completed within a certain time—a sure incentive to rapid work. The Belgian working man, it may be observed, loses no chance of earning money.

Fortunately, the foundations of these rapidly-constructed houses are of concrete. But whether the rest of the jerry-built edifice is likely to withstand the blustering wind and continuous rain of Belgian winters remains to be seen; from the end of October till the beginning of April the weather is bad enough to test to the utmost the stoutest structure—and to lay it low. Judging by appearances the "three weeks" houses will crumble up within twelve months, or, say, fifteen.

Meanwhile, the war-devastated area runs to very few concrete houses, one reason being that concrete is none too plentiful in southern Belgium. Another reason is that the Belgian, although by way of being an economist, has yet to learn that in building the most costly materials often are—in the long run—the least expensive. It is to be hoped he will eventually discover this for himself.

THE ARCHITECTURAL ASSOCIATION OF IRELAND.

THE opening meeting of the twenty-fourth session of the Architectural Association of Ireland was held last week, when the President (Mr. J. C. Dewhurst, A.R.I.B.A.) delivered his inaugural address. He dealt with co-operative and educational aims in relation to architecture, and suggested that the services of architects could be made more beneficial to the community through more complete co-operation on their part with professional and other bodies whose work and interests were identical in this respect. He emphasised the importance, in the first place, of a mutual understanding among architects and engineers to ensure the incorporation of visual satisfaction with physical efficiency in all architectural and engineering works. He urged the necessity of improved educational facilities for architectural students in order that they might be better equipped for dealing with the complicated problems of modern life as they affect the architect. He said he looked forward with hope to the speedy registration of the profession, and thought this would constitute a further influence in the direction of the amelioration of civic life.

Typical Village Ruins in Belgium.

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From an original by Francis Dodd.

THE AGE OF CONSTRUCTION

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ELECTRICITY IN SMALL HOUSES.—VI.

A COUNTRY HOUSE INSTALLATION.

In town the contractor's hands are tied by fixed conditions of voltage, type of current, wiring regulations, etc., but in the country he can give free play to his originality and initiative; he need not bow to rule, but can endeavour to create an ideal installation, so far as funds permit. Seeing that often the only competitor for lighting is the paraffin lamp, and for heating and cooking the coal or wood fire, while in respect of power there is practically no competition, it will be clear that electricity is pre-eminently capable of ministering to the comfort and happiness of the residents in a country house. Thanks to the invention of the high-efficiency lamp on the one hand, and the petrol or oil-engine on the other, the conditions have undergone a vast change during the past ten or fifteen years; a very small generating set and storage battery now suffice for quite a large house so far as lighting is concerned, and the apparatus has been so much simplified and otherwise improved that it can be placed in the care of a gardener or chauffeur with confidence.

Storage should always be provided to enable the lamps to be used at any time of the night, and to tide over a few days without running the engine. By using a low voltage the number of cells is kept down, the cost of the wiring reduced, the danger of fire practically abolished, and the use of gas-filled lamps of small candle-power made possible; the distances of transmission need not be great, and therefore a voltage of 25 volts will generally suffice. In any case, 50 volts need never be exceeded in a small house installation. Moreover, as the installation is isolated, an earthed return can be used with great advantage. This enables such wiring systems as the Stannos to be employed, on the concentric system, with the outer conductor earthed. The wiring then is extremely inconspicuous, no damage is done to decorations, etc., and the cost is kept down to the minimum. Henley, Kaleeco, or C.T.S. cable is also very suitable. With such low voltages the stress on the insulation is insignificant, but joints and screwed connections should be carefully made to secure permanent high conductance, as the resistance of a bad joint will be far more detrimental than in the case of a high-voltage installation.

For a 25-volt installation thirteen cells will suffice, and if the average number of lamps in use for five hours daily is ten, aggregating 200 watts, cells of a capacity of 300 ampere-hours will store sufficient energy for a week's use. They should be mounted on a stand in an outhouse, protected from dust, and away from stables or any other source of ammonia. The last three cells should be connected to a regulating switch. Unfortunately the step of two volts per cell is a rather large jump at 25 volts, but the difficulty can be overcome either by installing a nickel-iron cell or a back-E.M.F. cell which can be cut in or out as required, giving a one-volt step.

For the generating set there is nothing better than a small petrol engine coupled direct to a dynamo on the same bed-plate; there are numerous makers of these excellent little sets, and for the lighting installation above-mentioned a 1½-kilowatt set would suffice, being capable of charging the battery fully in ten hours or less, and requiring very little attention. The only weak point in the system is the care of the battery, which must be periodically tested and examined, and never over-discharged. To remove this drawback, automatic sets are on the market which charge the battery whenever necessary without personal initiative; another type of automatic set reduces the battery to a mere regulator, the engine and dynamo automatically starting whenever a lamp or other consuming device is switched on. Even with these, however, occasional inspection of the battery is necessary, and in the latter case there is no reserve against breakdown of the engine or delay in obtaining petrol.

Alternatively, a paraffin oil-engine can be used, consuming cheaper fuel, but this type usually requires starting with petrol. Steam plant is wholly unsuitable. In many districts, however, there is a small waterfall available, which is a still more desirable source of energy, as, once installed, the plant costs practically nothing for maintenance or attendance, and consumes no fuel; the turbine and dynamo can be left running day and night without harm, and only need inspection and oiling from time to time. There are hundreds of such installations at work in this country, from 1 to 20 or 30 horse-power. The only serious drawback to this method of obtaining power is the possibility of a drought or a severe frost shutting off the supply for a time. In some cases a windmill, of the type so commonly used for pumping water, has been used to drive the dynamo; this is a still more variable and unreliable source than water-power, and is by no means so inexpensive as might be supposed, owing to the considerable cost of the tower on which the mill is mounted. Nevertheless, such installations have in some cases proved most successful—in others they have failed to give satisfaction. On account of the varying speed of the wind, automatic switchgear must be provided, and the dynamo should be of the constant-voltage type used on motor-cars, etc.

So much for lighting. Cooking and heating requirements cannot be so easily fulfilled, owing to the large power required in each case. Where these comforts are called for, nothing less than five kilowatts should be provided by the generating set, and the battery should be of much larger capacity; the voltage also should be not less than 50 volts in a small house, and a large house would need a higher pressure, unless the wiring were very heavy. For cooking and heating it would be desirable to run the dynamo during the period of heavy load, to help the battery; but it may be pointed out that if a large enough battery is provided the amount of power available for an hour or so may be very great without employing a large generating set. Even the small battery mentioned above would give 3 or 4 kilowatts for an hour. We have not space to discuss the subject fully, but would lay stress on the wide scope of a fairly large battery and a small generating set.

For effective heating, a radiator of less than 1 kilowatt is of little use; an average of 2 kilowatts may be taken to arrive at an approximate estimate of the demand. For cooking, a family of six persons will require a maximum of 5 kilowatts, and a consumption of 1½ kilowatt-hours of energy per person per day. Nowhere more than in a country house are the benefits of electrical methods of lighting, heating, and cooking appreciated, and there are several known examples of the all-electric house in this country.

With regard to power applications, those mentioned in our last article automatically become available if electric heating and cooking are adopted, for none of them takes anything like so much power as these uses. Where lighting alone is installed, such items as electric irons and suction cleaners may be used provided that they can be obtained wound for the low voltage employed. They should be connected to wall sockets, and not to lamp-holders. Electric pumps may also be found very useful.

Particular care should be taken in installing a petrol or oil engine to see that the exhaust is properly silenced. There is no difficulty in effecting this, but it is sometimes neglected, with the result that much annoyance is caused to neighbours.

CENTRAL HEATING AND VENTILATION.—VI.

By A. J. WELLS.

Accelerated Hot-Water Systems.

ALTHOUGH accelerated systems are very popular in this country, little has been published on the subject, and the student of heating is often at a loss for information; as a result he is sometimes compelled to work on details of primary importance without having knowledge of the fundamental principles.

The circulating pressure produced in a gravity hot-water system by the varying density of the water is sometimes insufficient to propel the required quantity of water through mains of reasonable size. Under such conditions means must be found for increasing the circulating pressure so that the velocity of the water may be increased and the pipe sizes reduced to a reasonable limit.

A number of inventions have been placed upon the market for this purpose, varying in simplicity from a disguised safety valve to a cumbersome apparatus resembling an internal combustion engine full of valves, levers, weights and everything likely to give trouble. If these systems are analysed it will be found that they can be divided into three groups, in which acceleration is produced by:—

(1) Steam injection or vacuum caused by condensation.

(2) Air injection.

(3) Pump (centrifugal or reciprocal).

The usual device adopted for producing acceleration is the centrifugal pump, which propels the water by the centrifugal action of a rotating fan, disc or propeller. In practice these pumps are generally coupled direct to electric motors or small steam turbines. They should be fixed in duplicate so that one can act as a standby to prevent inconvenience if the other breaks down, and, moreover, should be so connected that if necessary they can work simultaneously, and the valves should be arranged so that either or both can be by-passed when desired.

The dimensions of a pump for any system depend upon the quantity of water it can deliver in a unit of time against a specified resistance. Before ordering, the performance or characteristic curves of the proposed pump should be studied so that the most efficient size can be determined; or, details of the conditions under which the pump must work should be supplied to the manufacturers so that they can advise the most suitable size and design.

A pump of correct dimensions is of utmost importance, as it performs the required duties necessary for the effective working of the

system at a minimum annual expenditure for power.

An opinion held by many is that the efficiency of an apparatus is directly proportional to the capacity of the pump; or, in other words, the larger the pump the better the job.

Others seek to safeguard the system against failure or defective circulation by installing a pump which delivers about four times the quantity of water necessary. This is not only expensive practice, but the results are often far from satisfactory. Another curious opinion held by some engineers is that an accelerated system should have a small temperature difference between the flow and return water. If the water flows away at 180 deg. F. and returns at 170 deg. F., the owner or client is congratulated upon possessing a very effective apparatus, but if the client was aware of the true facts he would take great care to see that the water returned at 140 deg. F. or even less, not by introducing resistances but by reducing the revolutions of the pump, or by installing a smaller one requiring less power.

Let us examine and compare the following examples :—

A has an installation of 1,000,000 B.T.U., the flow temperature is at 180 deg. F. and the water returns at 170 deg. F. The circulating pressure is calculated at 20 ft. water column. The theoretical horse-power required is therefore—

$$\frac{10^6 \times 20}{10 \times 33{,}000 \times 60} = 1.0$$

Now B has a similar installation of 1,000,000 B.T.U. with flow temperature of 180 deg. F., calculated on 20 ft. circulating pressure, but it is so designed that the water returns at 140 deg. F., instead of 170 deg. F. The theoretical h.p. is—

$$\frac{10^6 \times 20}{40 \times 33{,}000 \times 60} = 0.25$$

A is therefore paying $\frac{1.0}{0.25}$ = four times as much for power as B, and according to commercial law should receive at least four times the amount of satisfaction from his installation. Let us compare the two installations. In the first place, A's radiators have a mean temperature of 175 deg. F. (assuming it is a "two-pipe" system) as against 160 deg. F. for B's, which indicates that A's radiators are 15 per cent. smaller than B's. But the quantity of water flowing through the pipes of A's installation is four times that of B's, so that to offer the same resistance they must be two or three sizes larger. The first cost, therefore, is likely greatly to exceed B's installation, which has slightly larger radiators, but much smaller pipes. The only small advantage that A may possess is perhaps a slight increase in the efficiency of his boiler—for this practically negligible quantity his electricity bill is quadrupled.

Having proved conclusively that a high return temperature is by no means efficient, let us consider the effect of increasing the circulating pressure.

There seems to be grave doubt in the minds of many designers as to the correct circulating pressure at which an accelerated system should work. The usual pressure adopted is about 30 ft. head of water, which for one installation may be quite correct, but for another entirely unsuitable. The figure should be determined by the desired size of the pipes and the velocity of water through the shortest circuit. It is obvious that, providing the same quantity of water is calculated in both cases, the greater the circulating pressure, the smaller the pipes will be and the higher the horse-power required. Now by reducing the pipe sizes, the first cost of the installation is also reduced, but the power required for driving the pump is increased. The problem which the designer must solve is "at what circulating pressure will the *total* cost be at a minimum"; not "at what circulating pressure will the *first* cost be at a minimum," that is not fair to the client. The *total* cost may be taken as the first cost plus the expenditure for power over the period of, say, 20 years.

The problem is by no means an easy one to solve. The first cost should be determined for various circulating pressures varying from 5 ft. to 50 ft. head and the corresponding power cost calculated over a period of 20 years. The cost of repairs can be assumed as identical in all cases and for purposes of comparison may be neglected.

Let us suppose, for argument, that another owner, C, also has an installation of 1,000,000 B.T.U., circulated like B's at 180 deg. F. flow and 140 deg. F. return, but instead of the circulating pressure being at 20 ft. it is at 40 ft. head. The theoretical horse-power is—

$$\frac{10^6 \times 40}{40 \times 33{,}000 \times 60} = 0.5$$

The power consumed is therefore $\frac{0.5}{0.25}$ = two times that required for B's installation, but on the other hand the pipes are smaller and therefore the first cost is reduced; to what extent, it is the designer's business to determine by re-costing the installation and calculating the power consumed.

"Will the reduced first cost justify the extra annual expenditure for power?" This is the question every client should ask; and every designer should be able to give the answer.

ECONOMIES IN SMALL HOUSE CONSTRUCTION.

In the course of a paper read at the recent Annual Conference of the British Commercial Gas Association, Mr. W. J. Swain, F.R.I.B.A., Architect to Messrs. Rowntree, said that he was convinced that little saving would be made by the substitution of new materials in house construction, and that economy could only be secured by elimination. In the ordinary cottage the chimney breast of the living room occupied about 8 sq. ft., leaving recesses on either side. These recesses were usually converted into cupboards, thus robbing the room of something like 18 sq. ft. Similar space was wasted in the kitchen, and on the bedroom floor 18 sq. ft. of room was wanted for fireplaces and flues. If gas fires were used throughout, however, no space would be wasted in forming flues, as the fumes could escape through the cavity in the case of hollow walls, or a space 9 in. by 3 in. could be left for this purpose in solid walls. In the houses on Messrs. Rowntree's garden suburb at Earswick, a saving of 42 sq. ft. per house had been secured by the adoption of gas fires; at 14s. per sq. ft. this meant a saving of £29s. 8s. in planning alone. An ordinary cottage required about 21,000 bricks for its construction, of which number 3,700 were necessary for the flues, &c.; these bricks could be saved, and at present prices for chimney contruction would represent £48 13s.

A moderate estimate of the economy effected by the adoption of gas fires, and the consequent reduction of the area of the house and the elimination of all construction work of flues and fireplaces, was as follows :—

	£	s.	d
Brickwork and labour forming flues and chimney stacks, including excavation and footings, 278 cub. ft. at 3s. 6d.	48	13	0
Floor area, 42 sq. ft. at 14s.	29	8	0
Plastering and angle bends to chimney breasts	2	10	0
Trimmer joist and labour thereon and cutting and waste to floors	3	5	0
Ceiling joists	1	5	0
Chimney pots and fixing	1	10	0
Cutting, waste of time and timber in forming roof around chimney stacks	1	10	0
Plumbers' time and material flashing to chimney stack	1	15	0
Time and material, mitreing picture rail to chimney breasts	0	6	0
Floor skirtings	0	6	0
Forming hearths, &c.	3	10	0
	£93	18	0

The cost of fittings in the ordinary form of construction at Earswick was as follows :—

	£	s.	d.
"Yorkshire" cottage range and fixing complete	17	10	0
Back boiler for hot water, and labour for setting	3	0	0
Labour and material, flow and return pipes to cylinder	2	0	0
30-gallon copper cylinder and fixing	4	10	0
Cold-water supply cistern and piping, including labour fixing	3	0	0
Brick copper complete, and labour for setting (the flue for copper is taken in the deductions in brickwork)	5	0	0
Living-room interior grate, surround, shelf, &c., material and labour for setting	10	0	0
Two bedroom grates, surround and labour for fixing, each	7	0	0
Total cost	£52	0	0

In the "all-gas" house the cost of fitting was as follows :—

	£	s.	d.
Gas cooker, supply pipe and fixing	12	0	0
Gas copper, supply pipe and fixing	6	0	0
Water heater to feed bath on first floor	13	10	0
Gas fire for sitting-room, surround and shelf	3	15	0
Two gas fires in bedrooms	4	18	6
Total cost	£40	13	6

The figures quoted were the net costs of labour and material at Earswick, and showed a saving for houses constructed for gas fires, &c., of £105 4s. 6d.

HOUSING (ADDITIONAL POWERS) ACT.

An important decision under the Housing (Additional Powers) Act, 1919, has been given in the case Davison *v.* The Birmingham Industrial Co-operative Society, Ltd. (the *Times*, October 23). In section 6, it is provided that, if any person at any time after the third day of December, 1919, without the permission in writing of the local authority within whose area the house is situated, demolishes in whole or in part or uses otherwise than as a dwelling house, "any house which was at that date in the opinion of the local authority reasonably fit or reasonably capable without reconstruction of being rendered fit for human habitation," he is rendered liable to fine or imprisonment. Subsection (3) provides: "Notwithstanding anything in this section, the permission of the local authority shall not be required in the case of any house . . . which was occupied and used otherwise than as a dwelling-house before the third day of December, 1919. In this section, the expression 'dwelling house' means a building constructed or adapted to be used wholly or principally for human habitation."

A summons had been taken out under the Act against the respondents for having used certain premises other than as a dwelling-house, in that they had, without permission, adapted certain portions of the premises to be used as a shop. The magistrates had dismissed the summons, holding that permission was not necessary, as the premises before December 3 were not a dwelling-house within the Act, as they had been used principally as a shop. On appeal, the Court held that the magistrates were right in dismissing the summons on the finding of the facts. The magistrates had found that, although the number of rooms on the premises used for habitation were seven in number, whereas the shop was but one room, the rooms used for habitation were thus only used as ancillary to the shop, and the value of the shop portion of the premises was the greater. The Court indicated that under the section a house must be a building constructed or adapted to be used wholly or principally as a dwelling-house for human habitation, whereas here the dwelling portion was merely ancillary to the use of the premises as a shop.

HOUSING AND TOWN-PLANNING NOTES.

Land for Housing.

Mr. Howard Martin, Official Arbitrator under the Acquisition of Land (Assessment of Compensation) Act, 1919, has issued his award in a claim by Mr. Thistlethwayte, tenant for life of the Portsdown Hill Estate, near Portsmouth, regarding the compulsory acquisition of 529 acres of his land for housing purposes by the Borough of Portsmouth. At the hearing of the claim, Mr. William Allen, counsel for the claimant, stated that early in 1919 negotiations took place between the claimant's advisers and the Corporation with regard to this particular land. On March 10, a contract of sale was entered into between the parties, and all matters between them were agreed, including the price to be paid for the land, subject to the approval of the Ministry of Health. The price agreed upon was £52,000, with the land freed from encumbrances excepting leases and rights. The Ministry of Health, however, declined to consent to the purchase at the price. Mr. Ernest Hall, surveyor, gave evidence on behalf of the claimant, and submitted a valuation of £52,772. On behalf of the Borough of Portsmouth, Mr. C. Hayley Mason, Superintending Valuer of the Inland Revenue, submitted a valuation of £29,350. The Official Arbitrator has awarded that the acquiring authority is pay the claimant the sum of £38,508, excluding an enclosure which was included in error in the notice to treat, and including a right of user of a bridge over the London and South-Western Railway on the western boundary of the estate. The Arbitrator ordered the acquiring authority to pay the claimant's costs.

Building by Direct Labour.

The Ministry of Health states that ninety-four local authorities are now proceeding with building schemes on which they are employing direct labour. These schemes involve the building of 8,006 houses. Nine public utility societies are also building by direct labour on schemes which comprise 1,128 houses. Recent sanctions to proceed by direct labour have been granted to the following local authorities: Abertillery (12 houses), Walthamstow (100), Essex County Council (2), Nantyglo and Blaina (50), Church Stretton (20), Carlton (66), Nottingham (224), Stamford (30), Hastings (72), Hythe (42), Farnham (28), and Southgate (20).

Valuation of Land for Housing.

The District Valuers of the Inland Revenue Valuation Office had, by the end of September, valued 15,123 housing sites, covering an area of 87,347 acres. They have also undertaken and completed negotiations on behalf of local authorities for the purchase of sites in 4,779 cases, relating to an area of 21,040 acres. The average price per acre finally agreed was £189, a reduction of £72 from the price originally asked by the sellers or provisionally agreed to by the local authorities.

Special Methods of Construction.

The Ministry of Health has issued an official list of all special methods of construction approved for the erection of houses under State-aided municipal schemes or for houses which are intended to qualify for the Government subsidy. The booklet (which is published by H. M. Stationery Office, price 6d. net), is fully illustrated by photos and sections.

A New Garden Village.

The Earl of Onslow, Civil Lord of the Admiralty, on Saturday last opened the first two houses of Onslow Village, near Guildford. The new village is being established by a public utility society, having as its head Mr. Frederick Litchfield, the pioneer of the Hampstead and Ealing garden cities. The Earl of Onslow sold 646 acres of land lying along the Hog's Back for £58,000, and invested £20,000 of that sum in the company. Guildford Corporation loaned £20,000, and is supplying gas and water. Altogether it is expected that £1,000,000 will be spent. There are to be recreation grounds, open spaces, a wood, and sites for hostels, institutions, and churches. An average of more than five houses to the acre is not to be allowed.

WEEKLY HOUSING RETURN.

Schemes dealt with by the Ministry of Health during the week ended October 23, included the following:—

Applications.

SITES.

URBAN.—Lambeth, 10.25 acres; St. Helens, 36.16; S. Shields, 288.

LAY-OUTS.

URBAN.—Amble, Axminster, Blandford Forum, Coseley, Enfield, Nottingham, Ogmore and Garw, Portsmouth, Quorndon, Rowley Regis, Southampton, Stockport, Sutton Coldfield.

RURAL.—Aberystwith, Banbury, Broadwoodwidger, Chailey, Cheltenham, Clutton, E. Westmorland, Eaton Bray, Hoxne, Langport, Long Ashton, Maldon, Newton Abbott, Oswestry, Plomesgate, Ramsbury, Romney Marsh, St. Faiths, St. Ives, Sturminster, Tewkesbury, Thetford, Uckfield, Thirsk, W. Hampnett, Wetherby.

COUNTY COUNCILS.—E. Sussex, Lancashire.

HOUSE-PLANS.

URBAN.—London County Council, 482 houses; Amble, 50; Axminster, 23; Blandford Forum, 18; Bristol, 182; Cardiff, 8; Cockermouth, 136; Folkestone, 20; Gildersome, 4; Harrow-on-the-Hill, 50; Maidstone, 20; Nottingham, 40; Ormskirk, 104; Portsmouth, 48; Queensbury, 14; Quorndon, 12; Southwick, 28; Stockport, 206; Sutton Coldfield, 18; Swansea, 110; Turton, 14.

RURAL.—Ampthill, 6 houses; Banbury, 24; Bedford, 6; Bradfield, 3; Brixworth, 8; Budleigh Salterton, 14; Chailey, 23; Chipping Sodbury, 16; Clutton, 14; Eaton Bray, 8; Godstone, 4; Grantham, 6; Hoxne, 6; Langport, 8; Long Ashton, 6; Maldon, 8; Martley, 8; Narberth, 22; Newbury, 2; Newhaven, 2; Newton Abbott, 3; Oswestry, 8; Petersfield, 6; Plomesgate, 4; Romney Marsh, 4; St. Faiths, 12; St. Ives, 10; Shardlow, 22; Skirlaugh, 7; Tewkesbury, 2; Thetford, 14; Thirsk, 12; W. Hampnett, 6; W. Lancashire, 44; Wetherby, 6; Williton, 16.

COUNTY COUNCILS.—E. Sussex, 2; Lancashire, 10; Warwickshire, 8; Yorkshire (E. Riding), 1.

Approvals.

SITES.

URBAN.—Harrington, 33.74 acres; Smethwick, 44.73.

LAY-OUTS.

URBAN.—Barnard Castle, Budleigh Salterton, Carmarthen, Cockermouth, Coseley, Hurst, Kingsbury, Paignton, Pontypridd, Rowley Regis, Saddleworth, Sutton Coldfield, Tiverton, Wilton.

RURAL.—Auckland, Battle, Cheltenham, Clutton, Dartford, E. Westmorland, Eaton Bray, Hoxne, Isle of Wight, Long Ashton, Maldon, Milton, Newhaven, Newton Abbott, Oswestry Plomesgate, St. Faiths, St. Ives, Spilsby, Stow-on-the-Wold, Thetford, Wetherby, Whiston, Williton, Wimborne and Cranborne.

COUNTY COUNCILS.—Lancashire, Yorkshire (E. Riding).

HOUSE-PLANS.

URBAN.—London County Council, 482 houses; Blackburn, 138; Blandford Forum, 18; Bristol, 182; Broadstairs and St. Peters, 54; Folkestone, 20; Gildersome, 4; Hurst, 2; Kingsbury, 56; Ormskirk, 104; Paignton, 6; Queensbury, 14; Rotherham, 1; Saddleworth, 4; St. Neots, 6; Salcombe, 20; Shoreham-by-the-Sea, 12; Southwick, 28; Sutton Coldfield, 18; Swansea, 110; Turton, 14; Usk, 6; Walton-le-Dale, 66; Wilton, 15.

RURAL.—Battle, 6 houses; Budleigh Salterton, 14; Chipping Sodbury, 16; Clutton, 6; Dartford, 6; E. Westmorland, 4; Eaton Bray, 8; Grantham, 6; Hoxne, 6; Long Ashton, 6; Maldon, 8; Martley, 8; Milton, 6; Narberth, 22; Newhaven, 30; Newton Abbott, 3; Ogwen, 14; Oswestry, 8; Plomesgate, 4; St. Faiths, 12; St. Ives, 10; Thetford, 14; W. Lancashire, 44; Wetherby, 6; Williton, 16; Wimborne and Cranborne, 12.

COUNTY COUNCILS.—Lancashire, 14; Warwickshire, 8; Yorkshire (E. Riding), 2.

Tenders Approved.

URBAN.—London County Council, 402 houses; Bedlingtonshire, 62; Bolton-upon-Dearne, 2; Bristol, 6; Colwyn Bay and Colwyn, 22; Coulsdon and Purley, 76; Horsforth, 62; Huddersfield, 15; Keighley, 16; Leeds, 12; Leek, 104; Manchester, 100; Market Harborough, 10; Newark, 6; Quarry Bank, 64; Redcar, 70; Rotherham, 9; Southgate, 20; Sutton Coldfield, 90; Swanage, 8; Swansea 110; Wednesbury, 186; Wem, 28; Weston-super-Mare, 10; Wigan, 135; Wombwell, 47.

RURAL.—Alresford, 20 houses; Atherstone, 42; Bakewell, 90; Bradfield, 4; Brandon, 34; Brecknock, 12; Bridlington, 10; Brixworth, 8; Cheltenham, 6; Chorley, 64; Crediton, 26; Driffield, 6; Fareham, 28; Godstone, 26; Grantham, 6; Hemsworth, 616; Henley, 6; Honiton, 24; Knaresborough, 18; Llandyssul, 2; Lutterworth, 6; Macclesfield, 16; Mere, 26; Newent, 6; Ripon, 8; Tadcaster, 256; Tendring, 4; Walsall, 22; Ware, 8; Wilton, 50; Winchester, 14; Wycombe, 14.

HOUSE AGENTS' AUTHORITY.

WE may draw attention to the case of Lewcock *v.* Bromley and Trimming & Co., reported in *The Times* for October 22, as it raises a point of importance to owners of property and house agents. The action was brought for specific performance of a contract of sale of two plots of land as against the first defendant, Bromley, and in the alternative against the second defendants, the agents, for return of a deposit and damages for breach of warrant of authority.

The plaintiff claimed on an agreement dated February 28, 1920, in which he claimed that he had purchased the plots for £150 and paid the agents to the vendor a deposit of £25, and had agreed to complete on March 25. The second defendants had signed this contract at the foot as: "agents for the vendor we hereby confirm the said sale, and as stakeholders acknowledge the receipt of the said deposit of £25." It appears that before this contract was entered into, viz., on February 24, the agents had written to Mr. Bromley saying they had an offer of £125 for the two plots and asking if they might accept the same. On February 26 Mr. Bromley had replied that if the offer had no connection with certain named persons the price was £150. When the agents had sent the contract to Mr. Bromley he had then written and said that it was useless, as the property did not belong to him but to his daughter.

The real issue in the case was, however, whether a general authority given to an agent to find a purchaser also authorises the agent to sign a contract binding on the vendor or principal, and the Court held that to justify the agent in signing there must be an express and special authority to sign, and no such authority had been shown in this case. There is nothing new in this decision as it is based upon authorities of long standing, but we draw attention to the case as it is of importance to house agents.

The agents in this case seem to have acted with perfect propriety, and the Court said that the representative of the firm had given his evidence most fairly, but their misapprehension of the law on this point has resulted in their having to pay nominal damages of 5s. and the costs of both the plaintiff and the defendant, Bromley, although only on the County Court scale, as the action could have been brought in the County Court. We, therefore, give prominence to the decision as it may prevent other agents suffering loss from a similar misconception of their authority, for the case seems a hard one.

THE BUILDING TRADE.

THE ONLY WAY.—IV.

By MAJOR E. A. PELLS, R.E., A.M.I.E.E., M.S.M.A.

Reliable Data.

THE importance of being in possession of data upon which absolute reliance can be placed, has been brought home to many building contractors during the past few months, for without correct and reliable data estimates are apt to show discrepancies when compared with actual costs, so that profits become a matter of luck.

It has been found when going through a number of recent estimates that the one item that has baffled any kind of certainty in the estimates has invariably been that of the labour cost. Now, when investigating with a view to further efficiency, it is necessary to carry out a system of simple time-studies of the work in hand, so that apart from the question of greater efficiency a quantity of reliable data can be obtained which makes the labour cost very certain when compiling estimates and submitting tenders. This in itself must result in a great saving of valuable time by preventing the submission of tenders that must, owing to the inaccurate data upon which they are based, inevitably be turned down.

When setting out to take time-studies it is necessary to be very discreet and tactful, as the workers once upset or made suspicious are far more difficult to persuade that the studies are not to be used to their detriment but for their benefit. By this I do not intend to convey the impression that the observer should at once rush around with a stop-watch and a smile, make a five-minute speech to the workers, and then start taking times. The stop-watch need not be thought about until a great deal of useful ground work has been carried out. However, what are known as "long time-studies" can be of very great use in determining many directions in which improvements in plant and management can be made.

A long time-study may be of a whole working day or any shorter working period, and may be of the work carried out by one individual or of a gang, only where the work of several persons has to be noted some happening of an apparently trivial nature may be ignored and a false idea created when the study is analysed. The data may be noted on a special form drafted for the purpose or on the page of a note-book, but whatever form be adopted there should be plenty of room so that everything affecting the job under observation may be recorded. Varying jobs and circumstances may on occasion demand different treatment, but a good general arrangement is to provide columns for Clock Times, Time actually at Work, Delays, Work Progress, and a good roomy column for Remarks. This Remarks column is of great importance in the early stages of investigation, as many entries in the other columns can only be estimated at their true value by the aid of the supplementary remarks thus entered. In the heading should be entered information as follows:—Time-study at ....., Name and Number of Worker, Description of Work, Date, and any other information that is particularly pertinent to the observations and which may be of assistance in arriving at the true values of the data recorded. For instance, all work done in the open air is affected to a greater or lesser extent by the prevailing weather conditions, and the state of the weather should, therefore, be entered on the study. At the foot of the study the observer should make a brief analysis showing:—Average progress rate of work per hour, time paid for; average progress rate of work per hour, actual time worked; percentage of waste time, and notes regarding plant used and arrangements for materials supply.

As the work of observing advances, many points which at first appeared to be of no consequence will be observed to be of importance in effecting the work. The advantage of commencing the work of observation with long time-studies is that the workers do not get annoyed by the use of a stop-watch, and they get used to seeing the efficiency man about the works. Another and perhaps greater advantage in the eyes of those employers who are not quite convinced that they can derive any benefit from efficiency methods is that the work can very well be carried out by a trustworthy clerk or assistant, as no great experience in such matters is essential. It must always be impressed upon the observer that definite accuracy in all that he notes is very necessary, especially as regarding time—even seconds are of importance; those few seconds during which a worker may stretch himself are quite legitimate, but the fact that the rest is taken must be recorded so that the true value of the recorded data can be appreciated.

When several long time-studies have been taken, and as far as possible the human factor equalised and the possibilities of observation errors eliminated, a tentative or experimental standard may be set, a due allowance being made ranging from 12 per cent. to 40 per cent., dependent upon the character of the work—for most jobs in connection with building a 25 per cent. allowance should be sufficient—to provide those breathing spaces which are very necessary. As the work of standardising advances these roughly arranged rests can be replaced by definite rest periods, spaced and planned with due regard to the resultant fatigue, not only muscular fatigue being considered but mental also.

The net result of early long time-studies will be such as to enable the management to knock off those big knobs and excrescences of waste which will stick out and attract attention. Changes in plant and the arrangements of same, and improvements in tools and the supply of materials having been made wherever necessary, there comes the more important work of motion study and short time-study. It will be found the best policy to carry these two out at the same time, as there are so many points where they are interdependent. Each job must be divided into operations, and each operation sub-divided into its elements, and these all carefully timed again and again and at the same time studied for waste movement so that the ultimate result is the perfect method with the plant and tools in use. This work cannot be hurried over, as if the methods are to be improved and definite standards fixed the best results can only be obtained by long and careful investigation. Once a standard is fixed and a method of payment equitably based upon it, under no circumstances should it be altered until the reason for doing so is equally as obvious to the worker as it is to the management.

It sometimes happens that management becomes satisfied with the savings effected by the improvements suggested by the long time-studies, and considers that the extra trouble and possible difficulty with labour may not be compensated by the amount of additional saving in time and effort. This is a short-sighted attitude to adopt, for without advancement we get stagnation, and it must be remembered that no progress has ever been made in this world by people who were perfectly satisfied. The great aim should be a comfortably housed community, and this great achievement is well worth any trouble; it can only be arrived at successfully by a combined and earnest effort by both management and labour in the building trade.

RATING CONVERTED FLATS.

A CORRESPONDENT has drawn attention to an important matter in connection with the rating of houses converted into flats. It will be remembered that on the second reading of the Increase of Rent Bill the Minister of Health, referring to the clause which related to rating, was reported as having said: "If new houses had to be charged with a higher rent than the old existing houses, and if the rates were assessed on the rents, new houses would have to pay twice the rates for similar houses, which would be quite unfair."

Our correspondent has for some time been performing work which should commend itself to the Government in converting old houses which in many cases have been unoccupied for many years into flats for which there is a demand. He states that in the present year he has so converted several houses into flats which are of exactly the same description and character and in precisely the same neighbourhood as others formerly so converted by him, but the rating authority has rated them on the basis of the present rent, which makes the rates exactly double the rates on the flats previously converted. He is thus in the position which Dr. Addison said would be "quite unfair." Our correspondent, relying on the statement as to the effect of clause 12, subclause (8) in the Bill, let these flats at inclusive rentals, and consequently his return for his expenditure is nearly absorbed by the rates. Our correspondent considered that the Act provided that the converted buildings would be rated as though they existed in August 1914, and he was supported in this belief by the statement quoted above of Dr. Addison in the House, but the matter has been brought to the notice of the Minister of Health who, in correspondence, has stated that he is advised that the above view is not correct and he thus interprets the subsection:—"The subsection does not say that properties newly converted into flats shall be rated as if they existed on August 3, 1914, but that the gross value of such properties for rating purposes shall not exceed the rent (exclusive of rates) which would be charged by

a local authority if the house had formed part of a housing scheme to which section 7 of the Housing, Town-Planning, &c., Act, 1919, applies."

We may say that it appears to us that this is the correct interpretation of section 12 subs. (9) as it now stands in the Act, but this raises the question as to how it is that the Act does not meet the hardship indicated by the Minister of Health and which he indicated would be quite unfair. If our correspondent is correct in his figures, and if the assessment has been made in accordance with the Act, then the injustice it was intended to deal with remains unredressed. An explanation has been offered by the Ministry which does not appear very satisfactory. It is said that at the time the Minister made the statement referred to above reconstructed dwelling-houses were not in the Bill at all, and that reconstructed houses were brought within the rating provisions at a later date; the Bill had been entirely redrafted, but it may be replied that if the Act does not afford the relief in the case of reconstructed houses which was indicated as necessary in the case of new houses, neither does it afford relief to the new houses, for in the Act the same method of assessment applies to both.

The sub-section is drawn in such extraordinary terms that it is very difficult to follow. It begins by enacting that the Increase of Rent Act shall not apply to dwelling-houses erected after or in course of construction on April 2, 1919, nor to any dwelling-house which has since that date or was at that date being *bona fide* reconstructed by way of conversion into two or more flats, and then it proceeds: "But for the purpose of any enactment relating to rating the gross estimated rental or gross value of any such house to which this Act would have applied if it had been erected or so reconstructed before August 3, 1914, and let at that date shall not exceed" the rent (exclusive of rates) charged by a local authority in respect of a house forming part of a housing scheme to which section 7 of the Housing, Town-planning, &c., Act, 1919, applies. This reference to section 7 is in itself obscure, for that section of the Housing Act is only one of the financial provisions with the side note "Power to Recoup Losses."

It has been pointed out by the Ministry, quite correctly, that the reference in this subsection of the Increase of Rent Act to the date August 3, 1914, is only inserted for the purpose of defining the class of house, *i.e.*, although the new or converted house is excepted from the Act if built or converted after a certain date, yet for rating purposes it must be such that the Act would have applied to it had it been erected before August 3, 1914. This legislation affords another example of the absurd draftsmanship which is so constantly condemned in the Courts. Legislation affecting matters of everyday occurrence should be expressed in terms which can be understood by those it affects, and not as a Chinese puzzle.

We are, however, drawing attention to this matter on broader lines, as it is important that those who are furthering housing so much desired by the Government should know where they stand, and whether the Act does meet the injustice which was recognised by the Minister of Health in his speech on the second reading of the Bill, and which it was intended to remedy. Our correspondent's experience appears to show that it does not.

The Future of Ypres.

In a written reply to a member of the House of Commons, Mr. Lloyd George stated last week that the Belgian Government had agreed temporarily to leave the Cloth Hall, the cathedral, and the ramparts of Ypres in their existing state pending formulation of a scheme by the British Government for the erection at Ypres of a memorial to the troops that fought there. The question of the erection of national memorials has been referred by the Cabinet to a committee presided over by the Earl of Midleton, which has made certain recommendations which include the rebuilding of the Menin Gate at Ypres.

RATES OF WAGES IN THE BUILDING TRADE.

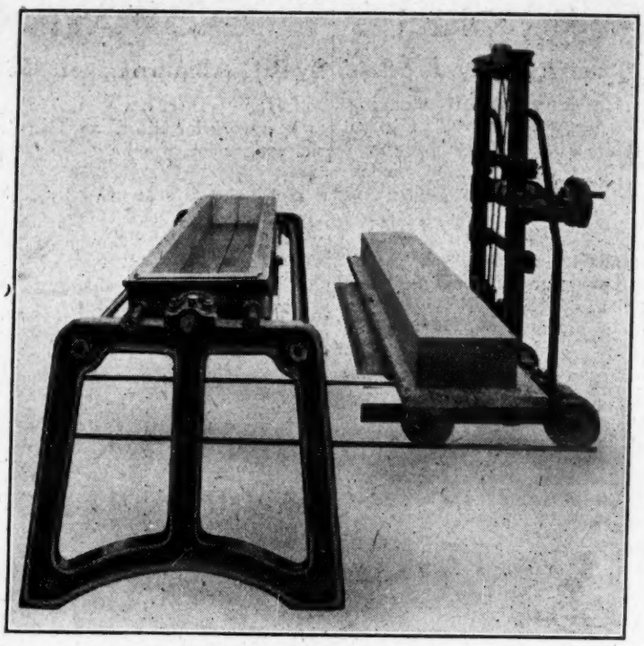
THE following are the present rates of wages in the building trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Bricklayers' Labourers.	Plasterers' Labourers.
Aberdare	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Accrington	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Altrincham	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Ashton-under-Lyne	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Barnsley	2/4	2/4	2/4	2/4	2/4	2/5	2/4	2/0–2/0½	
Barrow-in-Furness	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Barry	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Bath	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Bedford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Birkenhead	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0½	
Birmingham	2/4	2/4	2/4	2/4	2/4	2/5	2/4	2/1	
Bishop Auckland	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Blackburn	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Blackpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Bolton	2/4	2/4	2/4	2/4	2/4	2/3	2/4	2/0–2/0½	
Bournemouth	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Bradford	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Bridgwater	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/10½	1/7½	
Brighton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Bristol	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Burnley	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Burton-on-Trent	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Bury	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Cambridge	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Cardiff	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Chatham	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Chelmsford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Cheltenham	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Chester	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½–1/11	
Chesterfield	2/4	2/4	2/4	2/4	2/4	2/–	2/4	2/1	
Colchester	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Coventry	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Crewe	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½–1/11	
Darlington	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Derby	2/3	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Doncaster	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Dudley	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/2½	1/11½	
Durham	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
East Glam. and Mon. Valleys	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Exeter	2/–	2/–	2/–	2/–	2/–	2/–	1/11	1/9	
Folkestone	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Gloucester	2/–	2/–	2/–	2/–	2/–	2/–	1/11	1/9	
Grantham	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Grays	2/4	2/4	2/4	2/4	2/4	2/4½	2/3	2/1	
Grimsby	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Great Yarmouth	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Guildford	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Halifax	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Harrogate	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Hartlepools	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Hastings	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Hereford	2/–	2/–	2/–	2/–	2/–	2/–	1/11	1/9	
Huddersfield	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Hull	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Ipswich	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Lancaster	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Leamington Spa	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Leeds	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Leicester	2/4	2/4	2/4	2/4	2/4	2/4½	2/4	2/1	
Lichfield	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Lincoln	2/4	2/4	2/4	2/4	2/4	2/–	2/4	2/1	
Liverpool	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0½	
Llanelly	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
London	2/4	2/4	2/4	2/4	—	2/4½	2/3	2/1	
Loughborough	2/4	2/4	2/4	2/4	2/4	2/4½	2/4	2/1	
Luton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Maidstone	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Manchester	2/4	2/4	2/4	2/4	2/4	2/3	2/4	2/0–2/0½	
Mansfield	2/2½	2/2½	2/2½	2/2½	2/2½	2/3	2/2½	1/11½	
Merthyr Tydfil	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Middlesbrough	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Newcastle-on-Tyne	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Newport, Mon.	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Northampton	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Norwich	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Nottingham	2/4	2/4	2/4	2/4	2/4	2/4½	2/4	2/1	
Oakham	2/1	2/1	2/	2/1	2/1	2/1	2/1	1/10	
Oldham	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Oxford	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Plymouth	2/1	2/1	2/1	2/1	2/1	2/1	2/–	1/10	
Pontypridd	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Portsmouth	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Preston	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Reading	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Rochdale	2/4	2/4	2/4	2/4	2/4	2/5	2/4	2/0–2/0½	
Rochester	1/11	1/11	1/11	1/11	1/11	1/11	1/11	1/8	
Rugby	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
St. Albans	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/8	
St. Helen's	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Scarborough	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
Sheffield	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Shrewsbury	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/2½	1/11½	
Southampton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Southend-on-Sea	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	1/11½	1/9	
Southport	2/4	2/4	2/4	2/4	2/4	2/–	2/4	2/0–2/0½	
South Shields	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Stockport	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Stockton-on-Tees	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Stoke-on-Trent	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	2/2½	1/11½	
Stroud	2/–	2/–	2/–	2/–	2/–	2/–	1/11½	1/9	
Sunderland	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Swansea	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Taunton	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Torquay	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Wakefield	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Walsall	2/2½	2/2½	2/2½	2/2½	2/2½	2/3½	2/2½	1/11½	
Warrington	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
West Bromwich	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/1	
Wigan	2/4	2/4	2/4	2/4	2/4	2/4	2/4	2/0–2/0½	
Windsor	2/–	2/–	2/–	2/–	2/–	2/–	2/–	1/9	
Wolverhampton	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/10½	
Worcester	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	
York	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	2/2½	1/11½	

NEW INVENTIONS.

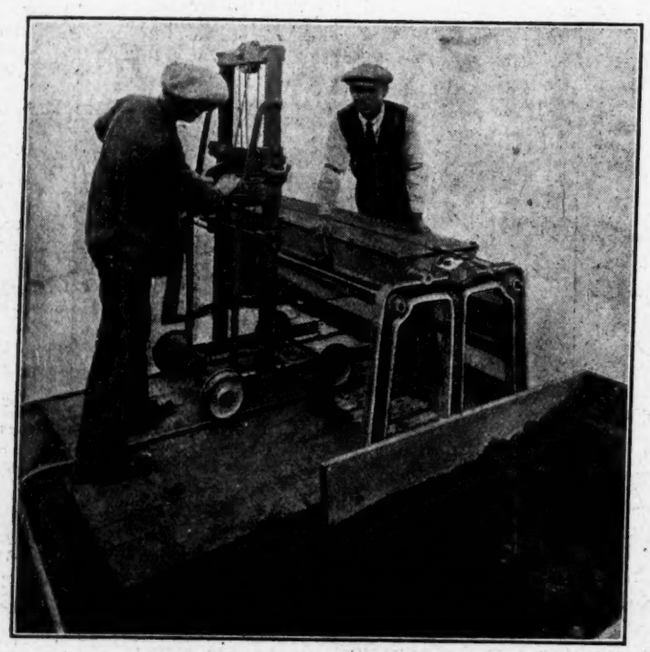
A New Concrete Block-making Machine.

THE "L.C." concrete block-making machine illustrated on this page, which we recently had an opportunity of inspecting, has been put on the market by the Liner (L.C.) Concrete Machinery Co., of Newcastle-on-Tyne, as a means of lessening the cost of building by a reduction of the amount of labour required. The moulding box is fitted inside with loose sides and ends, the inside dimensions of which are 6 ft. by 13 in. by 6⅝ in., and solid blocks to this size can be turned out for lintels or the box can be divided up into any number of separate compartments for the manufacture of smaller blocks, either solid or hollow, plain or rock-faced, according to the liners or face moulds used. The moulding machine, elevator, turn-table and track are sold as a complete unit. The method of operation is very simple, and only three men are required to tamp the concrete into the mould and stack the blocks by means of the travelling elevator. The blocks are made face-down, and after the concrete has been tamped and floated off a stout wooden pallet is placed over the top of the moulding box and held down by clips on the side of the box. The pin which holds the box horizontally in the frame is then released and the mould turned over on a central axis. The elevator with the table at the required height is run under the box, and the clamps which hold the pallet which was placed over the top (now the bottom) of the moulds are released, thereby transferring the block to the elevator table. The table is then lowered and backed clear of the moulding box, the false sides and ends of the mould removed and replaced in position in the box, and the elevator pushed along the track to the place where the blocks are to be used. Here the elevator is wheeled up to trestles upon which the pallet containing the block is placed by lowering the table. The wheels of truck of the elevator are fitted with ball-bearings, and the whole operation of taking a block or batch of blocks from the moulding-box and stacking them can easily be performed by one unskilled man or a boy. The elevator will lift a load of 4 cwt. to a height of 4 ft. 6 in., thus enabling the blocks to be stacked in tiers three high. When several small blocks are being made, the liner which divides the mould lengthwise is taken away through the bottom of the box so as to obviate the possibility of damaging the edges of the finished blocks which might arise through concrete adhering to it if it were withdrawn from the top. According to the liners used, the machine can be used for making slabs, lintels, mantles, cornices, fence-posts, heads, sills, &c., and it will also make as many as twelve plain or rock-faced blocks of various dimensions at one time. It is claimed that the complete operation of filling, tamping and floating the concrete, fixing the pallet and transferring the finished block to the elevator can be accomplished in three minutes. By a special attachment the height of the mould can be increased to permit of blocks 10 in. high being made.



The "L.C." Concrete Block-Making Machine.

Mr. H. Johnston Thomas, builders' material merchant, of 11, Duke-street, London Bridge S.E, 1, is now on the telephone, his number being Hop 3502.



The "L.C." Concrete Block-Making Machine.

MACHINERY FOR ROAD CONSTRUCTION.

As the London County Council has now definitely accepted the proposals of the Ministry of Transport for the construction of several new arterial roads in the London district, a cinematograph film depicting the use of machinery in concrete road construction which we had an opportunity of inspecting last week, came at an opportune moment. The primary object of the local authorities is to provide work for as many men as possible during the coming winter, but this is no reason why the works should be carried out regardless of output. If it is decided that a definite number of men are to be employed on work which but for the prevalence of unemployment would not be considered urgently necessary, it is due to the community, who after all have to foot the bill, that the result of their labours shall be to provide a maximum of useful amenities at the lowest possible outlay. In the reconstruction of Oxford-street it is stated that the use of concrete mixers and pavers is effecting a saving of 15 to 20 per cent. per square yard, and, further, that whereas about sixty-five men would be necessary to mix and lay the concrete foundations by hand, only thirteen men are required to feed and operate each mixing and paving machine. This, of course, eliminates a certain amount of labour, but if it is a condition that a fixed number of men have to be employed the use of machinery would enable a far greater amount of work to be done per man. The film to which we have referred showed the use of machinery in the construction of a concrete road from mechanical diggers and shovels in the clearing of the site to a mechanical screeding and tamping machine for levelling and hardening the finished surface, and mixers and loaders were also shown in operation. It is claimed that in America as much as 700 lineal yards of concrete roadway 20 ft. wide have been completed in a single working day.

The Bergougnan Tyre Co. (14–15, Warwick-street, W. 1) have concluded an agreement with an insurance company whereby a policy is issued with each "B.G." cord cover which insures the purchaser against any loss of mileage under the number of miles guaranteed with each cover, namely, 8,000. Also, in order to make "B.G." covers more widely known in this country, the Bergougnan Company are offering to every private buyer of a "B.G." cover a tube to fit the same. We understand that this offer holds good for the month of November only.

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) advertised in this number. Contracts vi-xxxii; Competitions iv; Public Appointments lxxviii; Sales by Auction lxxxii. Certain conditions beyond those given in the following information are imposed in some cases such as that advertisers do not bind themselves to accept the lowest or any tender: that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where, quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

NOVEMBER 8.—**Amesbury.**—HOUSES.—Erection of 40 houses in the following parishes, viz., Newton Tony (4), Figheldean (4), Little Boscombe (4), Winterbourne Stoke (4), Winterbourne Gunner (4), Amesbury (20), for the R.D.C. Mr. A. M. Wilson, Clerk, 12, Bridge-street, Salisbury. Deposit, £2 2s.

NOVEMBER 8.—**Bradfield.**—COTTAGES.—Erection of one, two, or three pairs of cottages at Burghfield, for the R.D.C. Messrs. Willcocks and Greenaway, architects, 138, Friar-street, Reading. Deposit £1 1s.

NOVEMBER 8.—**Budleigh Salterton.**—HOUSES.—Seven pairs of parlour-type houses at Budleigh Salterton, South Devon, for the Council. Mr. F. G. Hill, Clerk to the Council, Budleigh Salterton.

NOVEMBER 8.—**Edinburgh.**—RECONSTRUCTION.—Reconstruction of tenement, 23, South St. James-street, for the T.C. Director of Housing, 1, Parliament-square, Edinburgh.

NOVEMBER 8.—**Huddersfield.**—HOUSES.—Erection of 38 workmen's dwellings, for the T.C. Mr. H. Sutcliffe, Borough Architect, 1, Peel-street.

NOVEMBER 8.—**Ilkley.**—ADAPTATION.—Erection and adaptation of Army hut at Ilkley Grammiar School, for the West Riding E.C. Education Architect, County Hall, Wakefield.

NOVEMBER 8.—**Leeds.**—ALTERATIONS.—Alterations to the Inland Revenue Office, Commercial Buildings, 36, Park-row, Leeds, for H.M. Commissioners of Works. Director of Contracts, H.M. Office of Works, London, Deposit £1 1s.

NOVEMBER 8.—**Leicester.**—ADDITIONS.—Erection of additional buildings at the Borough Sanatorium, Leicester, for H.M. Commissioners of Works. Director of Contracts, H.M. Office of Works, Storey's-gate, Westminster, S.W. Deposit £1 1s.

NOVEMBER 8.—**Mansfield.**—ADDITIONS.—Erection of additional buildings at Ransome Sanatorium, Ratcherhill, near Mansfield, for H.M. Commissioners of Works. Director of Contracts, H.M. Office of Works, Storey's-gate, Westminster. Deposit £1 1s.

NOVEMBER 8.—**Newton-Mearns.**—HOUSES.—Erection of eight blocks of cottages at Newton-Mearns, for the Renfrew C.C. Mr. Jas. A. M'Callum, District Clerk, 15, West George-street, Glasgow. Deposit, £1 1s.

NOVEMBER 8.—**Newtown and Llanidloes.**—HOUSES.—Erection of 12 houses in Caerswa, for the R.D.C. Mr. R. W. Davies, architect, Severn-square, Newtown. Deposit £1 1s.

NOVEMBER 8.—**Royston.**—HOUSES, &c.—Erection of 30 houses and the necessary road and sewer works, for the U.D.C. Mr. H. F. J. Banham, Clerk, Council Offices, Royston, Herts. Deposit £2 2s.

NOVEMBER 8.—**Sandwich.**—HOUSES.—Erection of 99 houses at Sandwich, Kent, for the T.C. Architect, Mr. E. W. May, 51, New-street, Sandwich. Deposit £3 3s.

NOVEMBER 8.—**Shipley.**—HOUSES.—Erection of 53 houses of seven types, at Craig End, Windhill, for the U.D.C. Architect, Council Offices, Somerset House, Shipley. Deposit £1.

NOVEMBER 8.—**Slough.**—HOUSES.—Erection of 212 houses of different types, for the U.D.C. Mr. Alan Bromly, architect, 4, William-street, Slough. Deposit £3 3s.

NOVEMBER 8.—**Yeadon.**—PAINTING.—For white-washing, colouring, &c., at the Yeadon South View Council School. Mr. E. H. Steel, Penny Bank Chambers, Shipley.

NOVEMBER 9.—**Keighley.**—PLASTERING.—Pointing with Mastic at the Infirmary, for the Board of Guardians. Steward, Infirmary, Keighley.

NOVEMBER 9.—**Nottingham.**—PAINTING.—Internal painting at the City Isolation Hospital, Bagthorpe, for the T.C. City Architect's Office, Guildhall, Nottingham. Deposit £1.

NOVEMBER 10.—**Llanasa.**—VARIOUS WORKS.—(1) erection of hearse house, tool stores, etc.; ((2) erecting stone wall enclosing cemetery; (3) constructing roads and footpaths, for the Parish Council. Mr. Philip Ll. Dykins, architect, Holywell.

NOVEMBER 10.—**London.**—TILING AND SLATING. Supply and laying of tiles and slates in connection with certain housing schemes, for H.M. Office of Works. Director of Contracts, H.M. Office of Works, Storey's-gate, S.W.

*NOVEMBER 10.—**Westminster.**—REPAIRS.—Repairs to the needle room roof at the Workhouse, 367, Fulham-road, S.W., for the Westminster Board of Guardians. Mr. W. J. Lickley, Clerk, Guardians' Offices, Princes-row, Buckingham Palace-road, S.W.1.

*NOVEMBER 11.—**Exeter.**—SHELTERS.—Supplying and delivering 5 wooden shelters at Ivybank, St. David's Hill, Exeter, for the Devon C.C. Mr. Frank Bowerman, Staplake, Starcross.

*NOVEMBER 11.—**Newhaven.**—HOUSES.—Erection of 36 cottages in South Heighton and Rottingdean, for the R.D.C. Mr. E. H. Fuller, 19, High-street, Lewes. Deposit £1 1s.

*NOVEMBER 11.—**Wenlock.**—HOUSES.—Erection of 6 houses, for the T.C. Messrs. Geo. Riley & Son, architects, Central Chambers, Wellington. Deposit £1 1s.

NOVEMBER 11.—**Sheffield.**—PAINTING.—For internal and external painting, etc., at the Park Baths, and for external painting at the Park Library, for the T.C. Mr. F. E. P. Edwards, City Architect, Town Hall, Sheffield.

NOVEMBER 11.—**Whitchurch.**—ADDITION.—Erection of a new classroom and special subjects centre at the Whitchurch Council School, for the Somerset C.C. Mr. A. J. Pictor, architect, Bruton.

NOVEMBER 12.—**Saffron Walden.**—HOUSES.—Erection of 33 B. type houses at the Debden-road site, Saffron Walden, for the Corporation. Mr. A. N. Forbes, Borough Surveyor, Hill-street, Saffron Walden. Deposit £1 1s.

NOVEMBER 12.—**Stratford-on-Avon.**—HOUSES.—Erection of houses, for the R.D.C., viz., Henley-in-Arden, 24; Ullenhall, 4; Beaudesert, 4; Wootton Warren, 2; Wellesbourne Hastings, 10; and Wellesbourne Mountford, 10. Mr. M. J. Harvey, architect, Shakespeare Chambers, Stratford-on-Avon. Deposit £1 1s.

NOVEMBER 13.—**Chapel-en-le-Frith.**—PAINTING.—Inside and outside painting, &c, at the Children's Home, for the Board of Guardians. Master of the Institution, Chapel-en-le-Frith.

NOVEMBER 13.—**Chesham.**—HOUSES.—Erection of 80 houses on the Brockhurst-road site, for the U.D.C. Mr. C. Philips Cole, architect, Berkhamstead, Herts. Deposit £2 2s.

NOVEMBER 13.—**Ghent.**—WAREHOUSES.—Construction of two reinforced concrete warehouses for the Municipal Authority. Engineering Office, Department of Overseas Trade, 35, Old Queen-street, S.W.

NOVEMBER 13.—**Maidstone.**—HOUSES.—Erection of 12 houses to be built in pairs at the Cock Inn site, Boughton, Monchelsea, for the R.D.C. Mr. Fredk. Post, Clerk, Council Offices, King-street, Maidstone.

NOVEMBER 13.—**North Berwick.**—HOUSES.—Erection of two blocks of four houses each at East-road, for the T.C. Mr. J. C. Miller, Burgh Surveyor, Berwick.

NOVEMBER 14.—**Altofts.**—HOUSES, ETC.—Erection of 39 houses on the Calverley Green Estate, and for road and sewer works in connection, for the U.D.C. Plans and specifications, Mr. T. H. Hallstone, Council Office, Altofts. Deposit £1 1s.

NOVEMBER 14.—**New Malden.**—HOUSES.—Erection of 113 houses and construction of roads for the Council's housing scheme. Mr. W. B. Sinclair, A.R.I.B.A., Architect to the Council, Council Offices, New Malden.

NOVEMBER 15.—**Ammanford.**—ALTERATIONS.—Alterations to Ebenezer Baptist Chapel. Mr. J. Howard Morgan, architect, 24, King-street, Carmarthen.

NOVEMBER 15.—**Anstruther.**—HOUSES.—Erection of 10 houses (5 blocks), for the T.C. Mr. Chas. F. Anderson, Architect, Town Hall, St. Andrews. Deposit £1 1s.

NOVEMBER 15.—**Benenden, Kent.**—BUILDINGS.—Erection and additional buildings at the Sanatorium at Benenden, near Cranbrook, Kent. The Secretary, H.M. Office of Works, Storey's-gate, Westminster, S.W.1. Deposit £1 1s.

NOVEMBER 15.—**Nottingham.**—PAINTING.—Tenders for internal painting at All Saints', Raleigh-street; Blue Bell Hill; Quarry-road; and Southwark schools, for the T.C. City Architect's Office, Guildhall, Nottingham. Deposit £1 1s.

NOVEMBER 15.—**Pitteweem.**—HOUSES.—Erection of 14 houses at Abbey Park, for the T.C. Mr. W. Walker, architect, 81, North-street, St. Andrews. Deposit, £1 1s.

NOVEMBER 17.—**Ecclesfield.**—BUILDING WORK.—Conversion of offices at Ecclesfield Warren Council School, for the West Riding E.C. West Riding Education Architect, County Hall, Wakefield.

NOVEMBER 17.—**Warmsworth.**—BUILDER'S WORK.—Repairs to playground, fences, offices, &c., at Warmsworth Temporary Council School. West Riding Education Architect, County Hall, Wakefield.

*NOVEMBER 19.—**Feltham.**—HOUSES.—Erection of 50 houses at Bedfont-lane, Feltham, Middlesex, for the U.D.C. Mr. J. H. Sandy, Clerk to the Council, Council Offices, High-street, Feltham, Middlesex. Deposit £2 2s.

NOVEMBER 20.—**Hove.**—BUILDING.—Erecting building for refuse, crushing machinery, boundary walling, stores, garage, fencing, drainage, &c. Borough Surveyor, Mr. H. H. Scott, Town Hall, Hove. Deposit £1 1s.

NOVEMBER 20.—**Todmorden.**—HOUSES.—Erection of 88 houses at Royd, for the T.C. Mr. J. A. Heap, Borough Engineer, Municipal Offices, Rise-lane, Todmorden.

NOVEMBER 22.—**Forshoe.**—HOUSES.—Erection of 22 houses and road-making at Wymondham, for the R.D.C. Mr. George J. Skipper architect, 7, London-street, Norwich.

*NOVEMBER 22.—**Leyton.**—Cleansing, painting and repairs at the Electric Light and Power Station, Cathall-road, Leytonstone, E.11. Contractor required to employ 75 per cent. of local labour in carrying out work. Mr. John B. Jacques, Lic.R.I.B.A., 2, Fen-court, Fenchurch-street, E.C.3. Deposit £1.

NOVEMBER 26.—**Goring Reading.**—COTTAGES.—Erection of 5 pairs of cottages in Goring and Whitchurch. Mr. G. F. Turner, 7, Broad-street, Bloomsbury, London, W.C. Deposit £1 1s.

NOVEMBER 30.—**Dunbarton.**—HOUSES.—Erection of forty blocks of 104 houses at Alexandria and 15 blocks of 44 houses at Renton, for the C.C. Mr. Joseph Weekes, architect, 201, Bath Street, Glasgow. Deposit £1 1s.

NOVEMBER 30.—**Uwchaled.**—HOUSES.—Erection of 54 houses on various sites for R.D.C. Messrs. of Berrington, Son & Watney, Prudential Chambers, Wolverhampton. Deposit £2 2s.

DECEMBER 1.—**Tendring.**—HOUSES.—Erection of 10 houses at Thorpe, for the R.D.C. Messrs. Tomkins, Homer & Ley, architects, Frinton-on-Sea. Deposit, £1 1s.

*DECEMBER 4.—**Oswestry.**—HOUSES, ROADS, SEWERS.—Erection and completion of 33 houses on Glyn Ceiriog and Pontfadog sites, construction of roads, footpaths, sewers, &c, for the Chirk R.D.C. Messrs. Berrington, Son & Watney, Prudential Chambers, Wolverhampton. Deposit £2 2s.

DECEMBER 5.—**Scotland.**—PAINTING, ETC.—Execution of painters', paperhangers' and gliders' work in connection with the ordinary works and repairs to buildings in charge of H.M. Commissioners of Works. Districts during one year, from January 1, 1921. Director of Contracts and Labour, H.M. Office of Works, Storey's Gate, Westminster.

NO DATE.—**Bishop's Stortford.**—HOUSES.—Erection of eight houses in Dunmow-road, for the W.D.C. Mr. J. H. Chetwood, 5, Bedford-row, London, W.C.1. Deposit £2 2s.

*NO DATE.—**Daventry.**—HOUSES.—Thirty-five pairs of various types of houses, for the R.D.C. Mr. J. B. Williams, The Moat Hall, Daventry. Deposit £1 1s.

FURNITURE, MATERIALS, etc.

NOVEMBER 8.—**Salford.**—CEMENT.—Supply of Portland cement, at the rate of ten tons weekly, for the T.C. Mr. L. C. Evans, Town Clerk, Salford.

NOVEMBER 9.—**London.**—SHELVING.—Supply of cases of pigeon-holes and open shelving, for H.M. Commissioners of Works. Controller of Supplies, H.M. Office of Works, &c., King Charles-street, Westminster, S.W. 1.

NOVEMBER 10.—**London.**—Tiles and slates in connection with certain housing schemes. Secretary, H.M. Office of Works, Storey's-gate, Westminster, London, S.W.1.

NOVEMBER 13.—**Bath.**—TIMBER.—Tenders are invited for supplying timber for show yard buildings at the Bath and West and Southern Show at Bristol. Mr. F. H. Store, 3, Pierrepont-street, Bath.

NOVEMBER 13.—**Bristol.**—MATERIALS.—Supply of materials to the Sanitary and Improvement Committee of the Corporation. Mr. Lessel S. McKenzie, City Engineer, Offices, 63, Queen-square, Bristol.

NOVEMBER 16.—**Dublin.**—RAILWAY STORES.—Supply of stores to the Great Northern Railway Co. (Ireland). Mr. J. B. Stephens, Secretary, Amiens-street Station, Dublin. Forms, 47 in number, 1s. each.

NOVEMBER 16.—**Dublin.**—STORES.—Supply of stores to the Midland, Great Western Railway Co. of Ireland. Storekeeper, Broadstone Station, Dublin.

NOVEMBER 20.—**Bradford.**—MATERIALS.—Supply of tramway materials for the Tramways Committee. Mr. R. H. Wilkinson, General Manager, 7, Hall Ings, Bradford.

NOVEMBER 20.—**Farnham.**—TAR.—Supply of approximately 25,000 gallons dehydrated tar, to the U.D.C. Mr. J. W. Wright, Clerk, Council Offices, Farnham.

NOVEMBER 22.—**Horsham.**—ROAD MATERIALS.—Supply of road materials and cartage, for the West Sussex C.C. Mr. H. W. Bowen, County Surveyor, North-street, Horsham.

NOVEMBER 24.—**West Hartlepool.**—MATERIALS.—Supply to the T.C. of road materials and sewer pipes. Mr. Nelson F. Dennis, Borough Engineer, Municipal Buildings, West Hartlepool.

NOVEMBER 30.—**London, S.W. 1.**—Supply of rain water goods. The Secretary, H.M.O.W., Storey's Gate, Westminster, S.W. 1.

DECEMBER 11.—**Enniskillen.**—RAILWAY STORES.—For supply of stores to the Sligo, Leitrim and Northern Counties Railway Co. Mr. J. Duff, Secretary's office, Enniskillen. Charge 1s. per form of which there are 36.

ENGINEERING, IRON AND STEEL.

NOVEMBER 10.—**Sheffield.**—ELECTRIC LIGHTING.—Electric lighting at the hospital and infirmary blocks at the institution of the Board of Guardians. Mr. J. E. Moulding, Union Offices, "The Edge," Sheffield.

NOVEMBER 10.—**Widford.**—BRIDGE.—Construction of a new bridge at Widford, near Chelmsford, consisting of steel girders, concrete and stone abutments, etc., for the Essex C.C. Mr. Percy J. Sheldon, County Surveyor, 66, Duke-street, Chelmsford. Deposit £2 2s.

NOVEMBER 12.—**Glasgow.**—ELECTRIC INSTALLATION.—For electric light installation in connection with Greenhead Housing Scheme. Electrical Engineer, 75, Waterloo-street, Glasgow.

NOVEMBER 12.—**London.**—RAILWAY MATERIAL.—Supply to High Commissioner for India of screw couplings, plates, copper, axlebores and springs, laminated, &c. Director-General of Stores, India Office, Whitehall, S.W.1.

NOVEMBER 13.—**St. Austell.**—RESERVOIR.—Construction of a reservoir at Polharmon, laying water mains, &c., for the R.D.C. Messrs. Andrew & Randell, engineers, New Inn Chambers, St. Austell.

NOVEMBER 16.—**Lewisham.**—WEIGHBRIDGE.—Supply and erection of a 20-ton weighbridge capable of weighing motor lorries, for the B.C. The Form of Contract may be seen, Town Hall, Catford (Surveyor's Department).

NOVEMBER 16.—**Wallasey.**—STEEL ROOF.—Steel work of a roof, for boiler house; span, 44 ft., length, 44 ft.; five trusses with angle-iron purlins, gutters, down pipes, &c. Mr. J. H. Crowther, gasworks, Limekiln-lane, Wallasey.

NOVEMBER 16.—**Wallasey.**—VARIOUS WORKS AND SUPPLIES.—The Corporation Gas and Water Department invite tenders for a Lancashire boiler, railway metals, creosoted sleepers, and for the construction of two branch railway sidings. Mr. J. H. Crowther, Engineer, Gas Works, Wallasey.

NOVEMBER 30.—**Bristol.**—DOCK.—The Bristol Docks Committee invite tenders for the lease of its dry dock on the floating harbour, near Cumberland-road, subject to the conditions that the lessee shall undertake the restoration and improvement of the dock (including the provision of a new caisson). Chief Engineer Avonmouth Docks, Bristol.

DECEMBER 1.—**Manchester.**—ENGINEERING WORKS.—Supply of engineering labour-in-day work in the Manchester District for one year, for H.M. Commissioner of Works. Director of Contracts, H.M. Office of Works, Storey's Gate, Westminster.

DECEMBER 9.—**British Columbia.**—DOCK.—Construction of dry dock at Esquimault, for the Department of Public Works, Ottawa. Enquiry Office, Department of Overseas Trade, 35, Old Queen-street, S.W.

ROAD, SANITARY, AND WATER WORKS.

NOVEMBER 12.—**Widnes.**—SEWERS.—Construction of about 753 lin. yards of 12 in. and 15 in. stoneware pipe sewers, for the T.C. Borough Surveyor's Office, Town Hall, Widnes. Deposit £2 2s.

NOVEMBER 15.—**Gellygaer.**—ROADS.—Construction of second section of the road between Hengoed and Tir-y-berth, about one mile in length, for the U.D.C. Mr. F. Read, Engineer, Council Offices, Hengoed, Glam. Deposit £2 2s.

✱NOVEMBER 15.—**Hendon.**—Kerbing, channelling, levelling, paving, metalling, and other works in connection with the fully making up of the following private streets within the Council's district. Mr. A. O. Knight, A.M.I.C.E., Engineer and Surveyor, Town Hall, Hendon, N.W. 4. Deposit £3 3s.

NOVEMBER 15.—**Mountain Ash.**—ROADS, ETC.—Construction of 700 lin. yards of sewer and surface water drain, etc., on housing site, for the U.D.C. Mr. W. G. Thomas, Surveyor, Town Hall, Mountain Ash.

NOVEMBER 16.—**Easington.**—ROADS.—For private street works at Shotton Colliery, Wingate-lane, and Horden. Mr. J. G. Heslop, Highway Surveyor, Castle Eden. Deposit £2.

NOVEMBER 20.—**Wath-upon-Dearne.**—ROADS, &C.—Construction of roads, sewers, fencing, &c., in connection with housing scheme at Wath, for the U.D.C. Messrs. Nicholson & Co., Clerks, Wath-upon-Dearne. Deposit £2 2s.

NOVEMBER 22.—**Dewsbury.**—SEWAGE DISPOSAL WORKS.—Construction of precipitation tanks, the culverting of Pildacre Beck, and other work in connection with the construction of sewage disposal works at Mitchell Laithes, for the Dewsbury T.C. Messrs. J. Diggle & Son, 14, Brown-street, Manchester. Deposit £3 3s.

NOVEMBER 22.—**Horsham.**—ROADS.—Supply on hire of steam rollers, for work during the season ending March 31, 1922, for the West Sussex C.C. Mr. H. W. Bowen, County Surveyor, North-street, Horsham.

FEBRUARY 14, 1921,—**Palestine, &c.**—CEMETERY CONSTRUCTION.—The Imperial War Graves Commission invite tenders for the construction of (*a*) four cemeteries in Palestine, (*b*) 26 cemeteries at Anzac (Gallipoli), (*c*) 14 cemeteries in Macedonia. Director of Works, Imperial War Graves Commission, 33–36, Baker-street W. Deposit £10.

✱NO DATE.—**Southall-Norwood.**—Contractors will ing to tender for the construction of roads and sewers, and builders who desire to tender for the erection of the first group of 100 cottages for the U.D.C. are requested to send their names and addresses to the Architect, Mr. Frederick Hall Jones, Parliament Mansions, Victoria-street, Westminster, S.W. 1. Deposit £2 2s.

Auction Sales, Tenders, &c.

✱NOVEMBER 9 AND 10.—**Mitcham.**—Messrs. Robt W. Fuller, Moon & Fuller, in conjunction with Messrs Chart, Son & Reading, will sell at Gorringe Park Estate, Mitcham, surplus contractors and builders' plant. Auctioneers' Offices, 83, High-street, Croydon.

NOVEMBER 10.—**Cheapside, E.C.**—Messrs. Toplis & Harding will sell at their sale rooms, 194 dozen British-made pickheads, 6,925 dozen British-made shovels. Auctioneers, 28, Old Jewry, E.C.2.

✱NOVEMBER 10.—**London, S.W.**—Messrs. Veryard & Yates will sell, without reserve, at 255, Clapham-road, stock of building material and timber. Auctioneer, 365, Norwood-road S.E.27

NOVEMBER 16 AND 17.—**Marshmoor Hill, Herts.**—Messrs. Joseph Hibbard & Sons will sell upon the site of the late Board of Trades' Mill at Marshmoor, stock of well-seasoned English timber.

✱NOVEMBER 23.—**Suffolk.**—Messrs. Joseph Hibbard & Sons will sell (by order of the Owners, Messrs. Calder & McDougall, Ltd.) site of the late Board of Trades' Mill, one mile from Mildenhall, the saw mill plant and stock of well cut timber, &c. Auctioneers, Newington Green, Islington, London, N.

Competitions.

(*See Competition News, page 511.*)

Public Appointments.

NOVEMBER 8.—**Battersea.**—DRAUGHTSMAN.—The temporary services of a junior draughtsman are required by the Borough Council. Borough Surveyor, Town Hall, Battersea.

NOVEMBER 8.—**Durham.**—County Valuer required by the County Council. Mr. Harold Jevons, Clerk to the County Council, Shire Hall, Durham.

NOVEMBER 8.—**East Grinstead.**—Clerk of Works required by the Urban District Council, Mr. E. P. Whitby Hughes, Clerk to the Council, London-road, East Grinstead.

NOVEMBER 8.—**Guildford.**—Clerk of Works required by the R.D.C. for housing scheme. Mr. J. H. Norris 51, High-street, Guildford.

NOVEMBER 9.—**Manchester.**—Housing Director required by the City Council. Mr. Thomas Hudson, Town Clerk, Town Hall, Manchester.

NOVEMBER 10.—**Durham.**—The County Council of Durham invite applications for various positions in the Architectural Department, Director of Education, Shire Hall, Durham.

NOVEMBER 10.—**Godstone.**—Clerk of Works required by the R.D.C. in connection with their housing scheme. Mr. Christopher Phillips, Council Offices, Oxted, Surrey.

NOVEMBER 11.—**East Sussex.**—Architectural Assistant required by the Small Holdings and Allotments Committee of the County Council. Clerk to the County Council, County Hall, Lewes.

NOVEMBER 12.—**Glamorgan.**—Junior Assistants required in Architect's Department of County Council Education Committee. Mr. W. James Nash, F.R.I.B.A., Metropolitan Chambers, Neath.

✱NOVEMBER 13.—**Brentford.**—Clerk of Works required, for the U.D.C. Mr. Charles Turner, Clerk to the Council, Council Offices, Brentford.

✱NOVEMBER 18.—**East Ham.**—Architectural Assistant (temporary) required in the Borough Engineer's Department. Mr. J. Birch, Borough Engineer, Town Hall, East Ham.

NOVEMBER 30.—**Thetford.**—Clerk of Works required by the Borough for housing scheme. Mr. John Houchen, Town Clerk, London-road, Thetford, Norfolk.

NO DATE.—**Birmingham.**—Junior Surveyor required by the City Council in Housing and Estates Dept. Frank T. Cox, Housing Director, Market Buildings, Moat-lane, Birmingham.

✱NO DATE.—**Gold Coast.**—Draughtsman required for the Public Works Department. Crown Agents for the Colonies, 4, Millbank, London, S.W. 1.

NO DATE.—**Rhodesia.**—Assistant Inspector of Public Works required in the Public Works Department. Messrs. Streatfeild & Atwell, architects, 24, Old Buildings, Lincoln's Inn, W.C.2.

TRADE NEWS.

An amalgamation has been completed between English Electric Supplies, Ltd., and the Lamp and Supplies Department of Messrs. Siemens Brothers & Co., Ltd., and, as from November 1 last, the business will be carried on under the title of the English Electric and Siemens Supplies, Ltd.; registered office, Brook House, 191 & 192, Tottenham Court-road, W. 1. The Supplies Department, with showrooms and stores at 38 & 39, Upper Thames-street, E.C. 2, will be retained, and all orders and business in connection therewith will be dealt with from that address, as heretofore. The new company will carry on the business of both companies on the same lines as formerly and with the same products, with the addition of new electrical devices shortly to be placed on the market. All orders unexecuted, and all obligations entered into by English Electric Supplies, Ltd., will be carried out by English Electric and Siemens Supplies, Ltd.

Messrs. Robert Jenkins & Co., Ltd., of Rotherham, have issued a new descriptive leaflet of the "Eco" combined gas cooker and hot-water supply boiler, with the new retail prices.

Messrs. Building Products, Ltd., (44–46, King's-road, Sloane-square, S.W. 3), have issued a booklet describing "Ferrolithic" concrete floor hardener and oilproofer. "Ferrolithic" is a metallic preparation in powder form, and can either be incorporated with the cement for the surface finish, or sprinkled on the concrete surface and trowelled in. The material is claimed to prevent concrete floors from disintegrating and dusting up.

Sir Ernest Jardine, Bart., Governing Director of John Jardine, Ltd., has received information from the French Minister that the honour of the "Croix de Chevalier de l'Ordre National de la Legion d'Honneur" has been conferred upon him by the President of the French Republic.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

BIRMINGHAM.—The Housing and Estates Committee has decided to purchase 41½ acres of land adjoining King's Heath Station for housing purposes.

BOURNEMOUTH.—Plans passed by T.C.:—Alterations and additions, 201, Christchurch-road, for Messrs. Hook & Oliver; four houses, St. Alban's-crescent, for Messrs. Lawrence; additions, "Mount Pleasant School," Dalmeny-road, for Mr. G. E. Holme; dynamo chamber, St. Luke's Church, Wimborne-road, for The Churchwardens; additions, "St. George's," Newstead-road, for Miss L. M. Hewitt; additions, "The Haven," 26, Wimborne-road, for Mr. A. Manchester; three houses, Heatherlea-road, for Mr. J. Drewitt; bungalow, Charminster-road, for Messrs. Wellstead Bros.; bungalow, Pinecliffe-avenue, for Mr. C. Garfitt; conversion into flats, "The Corner House," Cambridge-road for Mrs. E. H. Jeffrey; additions to Bungalow, 4, Balfour-road, for Mr. J. Masters; house, Cecil-avenue, for Mrs. Hobson; two bungalows, Charminster-road for Messrs. Wellstead Bros.; bungalow, corner Charminster and Gresham-roads, for Messrs. Wellstead Bros.; bungalow, 5, Clifton-road, for Mr. A. G. Pratt; bungalow, Southwood-avenue, for Mrs. McIntyre; bungalow, Arcadia-avenue, for Mr. Barclay; house, Kimberley-road, for Messrs. Elcock Bros.; house, Stokewood-road, for Messrs. G. E. & W. R. J. Lambert; van house and store, 69, Nortoft-road, for Mr. Hillier; house, Queen Mary avenue, for Mr. S. Way; house, Gresham-road, for Mrs. King.

CANNOCK.—Plans passed by R.D.C.: New works, Showell-lane, Bushbury, for the Midland Flock Milling Co.; new works, Four Ashes, for the Picklene Syndicate, Ltd.

CHESTERFIELD.—The Highway Committee have approved a plan of new works for electric lamp making for the British Thomson-Houston Co., Ltd., at Stonegravels.

COPPULL.—Application is being made for the Lancashire C.C. for sanction to borrow £8,035 for the erection and furnishing of a new school.

EAST HAM.—Garage, at stores, Romford-road, for Whitbread & Co.

HAMMERSMITH.—Drainage plans passed by B.C.: at Railway Approach, Goldhawk-road, J. Mowlem & Co.; at Sackville Laundry, Brook Green, C. E. Ardley; at White City Building, Shepherd's Bush Exhibition; at 35, Dorville-road, J. Chamberlen; at 1, Roxwell-road, W. E. Brooks; at 22, Rowan-road, A. E. Roper; at Feather Mills, Woodstock-road, F. Mark; at 59, Cambridge-road A. Pascall & Son.

HANDSWORTH.—The Surveyor of the U.D.C has been requested to prepare plans and specifications for the conversion of the malthouse into swimming and slipper baths.

HESTON AND ISLEWORTH.—Plans passed by U.D.C. From Mr. W. Emmett, for addition to garage, "Sandown" Lampton-road, Hounslow; from Mr. N. Parr, for additions and alterations to "Royal Oak," Worton-road, Isleworth; from the Middlesex County Council, for four cottages, Jersey-road, Lampton; from Daniels & Sons, Ltd., for two cottages, Hanworth Passage, Hounslow.

HORNSEY.—Plans passed by B.C.:—Two houses, the Chine, for Mr. W. B. Collins; house, Fordington-road, for Mr. C. Tucker; house, Sheldon-avenue, for Mr. W. Quennell.

ISLINGTON.—One story shop, 106, St. James'-road, Holloway, Messrs. E. Pollard & Co. (Mr. F. P. Hooke).

OTLEY.—A contract has been signed between the U.D.C. and Sir Robert MacAlpine & Sons, Huddersfield, for the erection at Otley of 63 houses, part of the scheme, for 210 houses.

PRESCOT.—The Lancashire C.C. is seeking authority to borrow £1,200 for the purchase of premises and adaptations of same for educational purposes.

PRESTON.—Plans passed: Mr. H. Heaton, wood shed, Addison-road; Mr. Richard Rhodes, office, Aqueduct-street; Mr. E. J. Andrew, pattern shop, offices, &c., Sellers-street; Mr. Robt. Hothersall, additions to garage, Lang's Yard, off Park-road; Mr. R. Baron, wood sheds, Oxford-street; Mr. F. N. Pinder, alterations, 70a, Church-street; Mr. P. H. S. Shepherd, garage, Hastings-road; Mr. Hy. Littler, office, 16, Ribblesdale-place; Mr. J. Nightingale, additions, 104, Norris-street; Mr. A. C. M. Lillie, additions, Strand-road; and extension to garage, Tattersall-street; Mr. H. Wilding, garage and shop, Cemetery-road; Mr. T. N. Livesey, bungalow, St. Andrew's-avenue; Mr. J. Bradshaw, refreshment rooms, &c. Liverpool-street.—The T. C. has decided to introduce into the next session of Parliament a bill for power to carry out improvements to the Ribble Navigation Scheme, streets, and water supply. It was stated that £168,000 would be required for dredging and deepening the River Ribble and the construction of training walls in the estuary; £2,000 for the purpose of the training wall of Lytham Dock channel; £62,000 for

(*Continued on page 533*).

* See also our List of Contracts, Competitions &c.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue many prices have been revised.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.	£ s. d.
Best Stocks	4 17 0
Per 1000, Delivered at London Goods Stations.	£ s. d.
Flettons	3 17 0
Best Stourbridge Fire bricks	12 14 0
GLAZED BRICKS—	
Best White, Ivory, and Salt Glazed Stretchers	29 10 0
Headers	29 0 0
Quoins, Bullnose and 4½in. Flats	36 0 0
Best Pressed Staffordshire	12 4 0
Do. Bullnose	12 9 0
Blue Wire Cuts	10 6 6
D'ble Str'tch'rs	38 0 0
D'ble Headers	35 0 0
One Side and two Ends	39 0 0
Two Sides and one End	40 0 0
Splays and Squints	37 10 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.	
Thames Ballast	19 6	per yard, delivered
Pit Sand	25 0	
Thames Sand	25 6	2 miles radius
Best Washed Sand	25 6	Paddington.
½in. Shingle for Ferro-Concrete	24 6	
¼in.	25 6	

Per ton, delivered in London area.

	£ s. d.	£ s. d.
Best Portland Cement	4 7 6	4 13 0

80/6 alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	10 0
Best Ground Blue Lias Lime	2 19 6 at rly. depot.

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 6d. each and credited at 2s. each if returned in good condition within three months.

Grey Stone Lime ..... 75s. 0d. per ton delivered.
Stourbridge Fireclay in s'cks 44s. 8d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R.. per ft. cube	3 2½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R.. per ft. cube	3 10½
Do. do. delivered on road waggons at Nine Elms Depot	3 11½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L.& S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 11½
Do. do. delivered on road waggons at above stations, per ft. cube	5 0½
White basebed, 3d. per ft. cube extra.	
NOTE.—½d ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station London.	s. d.
Scappled random blocks ..... Per Ft. Cube	17 4
6 in. sawn two sides landings to sizes (under 30 ft. super.) ..... Per Ft. Super	11 10½
6 in. rubbed two sides, ditto ..... "	13 3½
3 in. sawn two sides slabs (random sizes) "	5 3
2 in. to 2½ in. sawn one side slabs (random sizes) ..... "	3 2
1½ in. to 2 in. ditto, ditto ..... "	2 9
HARD YORK— Delivered at any Goods Station London.	
Scappled random blocks ..... Per Ft. Cube	13 3
6 in. sawn two sides landing to sizes (under 40ft. super.) ..... Per Ft. Super	10 3
6 in. rubbed two sides ditto ..... "	12 1
4 in. sawn two sides slabs (random sizes) "	6 2
3 in. ditto, ditto "	4 11
2 in. self-faced random flags .. Per Yard Super	16 2

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	67 10	per standard
4 × 9	67 10	"
4 × 8	60 0	"
4 × 7	50 0	"
3 × 8	48 10	"
3 × 7	47 10	"
2½ × 7	47 10	"
3 × 6	45 0	"
3 × 11	65 0	"
2 × 11	65 0	"
3 × 9	57 10	"
2½ × 9	57 10	"
3 × 4½	47 10	"
3 × 4	47 10	"

PLANED BOARDS.

1 × 11	67 10	"
1 × 9	65 0	"

PLAIN EDGE FLOORING.

Inches		
¾	40/-	square
1	45/-	"
1¼	52/6	"
1½	66/-	"
1¾	75/6	"

TONGUED AND GROOVED FLOORING.

Inches		
1	52/-	square
1¼	65/-	"
1½	75/-	"

WOOD (*Continued*).

MATCHINGS (BEST).

Inches		
¾	36/-	square
1	42/6	"
1¼	54/-	"

BATTENS.

Inches	£ s.	
¾ × 2	45 0	per standard

SAWN LATHS.

Per bundle	0 6 6

Dry Wainscot Oak, per ft. super, as inch	0 3 6	to	0 4 0		
½in. do. do.	0 3 0	..	—		
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0 2 6	to	0 3 0		
Cuba, Mahogany	0 4 0	to	0 4 6		
Teak (Rangoon, Moulmein or Java), per load	75 0 0	to	85 0 0		
American Whitewood planks, per ft. cube	0 18 0	to	1 4 0		
Scotch Glue, per cwt.	10 0 0	..	—		
Liquid Glue, per cwt.	6 12 0	..	—		

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

	£ s. d.
Best Blue Bangor Slates, 24 by 12	56 10 0
22 by 12	46 0 0
First quality " 22 by 11	42 10 0
20 by 12	42 0 0
Best Blue Portmadoc 20 by 10	36 10 0
" " 18 by 10	29 10 0
First quality " 18 by 9	24 5 0
" " 16 by 10	22 15 0
" " 16 by 8	18 0 0

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	6 15 0
Ditto hand-made ditto	7 5 0
Ornamental ditto	7 2 6
Hip and valley tiles (per dozen)	0 15 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—	£ s. d.
R. S. Joists, cut and fitted	39 0 0
Plain Compound Girders	43 0 0
Stancheons	45 0 0
In Roof Work	49 0 0

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £15 net value delivered direct from works. 5 per cent. less above gross discounts, carriage forward if sent from London stocks.)

	Sizes up to and including ¼ in. Tubes.	Sizes up to and including 2in. Tubes.	Fittings.	Sizes 2½ in. to 6 in. Tubes.	Fittings.
Gas	+7½	+ 5	— 5	— 2½	— 17½
Water	+17½	+15	Net	+ 6½	— 15
Steam	+28½	+26½	+ 5	+ 16½	— 12½
Gal.Gas	+32½	+30	+ 5	+ 22½	— 7½
" Water	+45	+42½	+ 10	+ 33½	— 5
" Steam	+57½	+55	+ 15	+ 45	— 2½

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d	s. d.	s. d
2 in. per yd. in 6 fts.	6 10	4 10	5 9½
2½ in. "	7 10½	5 4	7 3
3 in. "	9 8½	5 9½	8 8½
3½ in. "	10 9	7 3	10 2
4 in. "	11 9½	8 2½	11 7½

RAIN-WATER PIPES, &c.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6fts, plain	5 9	3 0	4 2
2½ in. " "	6 4	3 7	5 0
3 in. " "	7 6	4 6	6 8
3½ in. " "	9 1	5 3	7 9
4 in. " "	10 0	6 6	9 6

L.C.C. DRAIN PIPES,—9 ft. lengths. London Prices. 4 in., 14/-. 5 in., 17/9. 6 in., 21/5.

	Per ton in London. £ s. d.	£ s. d.
IRON—		
Common Bars	34 10 0 to	35 10 0
Staffordshire Crown Bars good merchant quality	35 0 0 ..	37 0 0
Staffordshire "Marked Bars"	36 10 0 ..	38 10 0
Mild Steel Bars	35 0 0 ..	37 0 0
Steel Bars, Ferro-Concrete quality, basis price	35 0 0 ..	37 0 0
Hoop Iron, basis price	44 0 0 ..	46 0 0
" " Galvanised	62 0 0 ..	66 0 0
Sheet Iron, and Soft Steel Black—		
Ordinary sizes to 20 g.	45 0 0 ..	47 0 0
" " " 24 g.	46 0 0 ..	48 0 0
" " " 26 g.	48 0 0 ..	50 0 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality—		
Ordinary sizes, 6ft by 2ft. to 3ft. to 20 g.	56 0 0 ..	58 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	57 0 0 ..	59 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g.	59 0 0 ..	60 0 0
Flat and Galvanised Corrugated Sheets—		
Ordinary sizes 6 ft. to 8ft. 20 g.	44 0 0 ..	45 0 0

METALS (*Continued*).

Per ton in London.	£ s. d.	£ s. d.
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	45 0 0 ..	46 0 0
Ordinary sizes, 6ft. to 9ft. 26 g.	47 0 0 ..	48 0 0
Sheets Galvanised Flat, Best quality—		
Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	50 0 0 ..	52 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	51 0 0 ..	32 0 0
Best Soft Steel Sheets 26 g.	53 0 0 ..	54 0 0
Cut Nails, 3in. to 6in. (under 3in. usual trade extras.)	47 10 0 ..	48 10 0

LEAD, &c.

Delivered in London.	£ s. d.	£ s. d.
LEAD Sheet, English, 4 lb. and up	49 0 0 ..	—
Pipe in coils	49 10 0 ..	—
Soil Pipe	52 0 0 ..	—
Compo pipe	53 0 0 ..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 1s. cwt. extra.

Old lead, ex London area, at Mills per ton	30	0 0 ..	—
Do., ex country, carriage forward per ton	31	0 0 ..	—

COPPER—			
Strong Sheet per lb.	0	2 3 ..	—
Thin " "	0	2 4 ..	—
Copper nails "	0	2 3 ..	—
Copper wire "	0	2 4 ..	—
TIN—English Ingots "	0	2 0 ..	—
SOLDER—Plumbers' "	0	1 4 ..	—
Tinmen's "	0	1 9 ..	—
Blowpipe "	0	2 0 ..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES

Per Ft.		Per Ft.	
15 oz. fourths	7d.	22 oz. fourths	11d.
" thirds	7½d.	" thirds	1/-
21 " fourths	9d.	Fluted, Obscured and	
" thirds	9½d.	Enamelled Sheet,	
26 " fourths	10d.	15 oz.	10d.
" thirds	11d.	21 "	1/-

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per ft.
¼ Rolled plate	6½d
⅜ Rough rolled and rough cast plate	7½d.
½ Rough rolled and rough cast plate	8½d
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	7½d.
Ditto, tinted	9½d.
Rolled Sheet	7d.
White Rolled Cathedral	7½d.
Tinted do.	9d.

PAINTS, &c.

	£ s. d.
Raw Linseed Oil in pipes per gallon	0 7 6
" " " in barrels "	0 7 8
" " " in drums "	0 7 10
Boiled " " in barrels "	0 8 2
" " " in drums "	0 8 4
Turpentine in barrels "	0 11 11
" in drums (10 gall.) "	0 12 —
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)	81 5 0
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered	110 15 0
Red Lead, Dry (packages extra) per ton	60 0 0
Best Linseed Oil Putty per cwt.	1 7 0
Filocol per cwt.	1 0 6
Size. X D Quality fkn.	0 5 9

VARNISHES, &c.

	Per gallon. £ s. d.
Oak Varnish Outside	0 18 0
Fine ditto ditto	1 0 0
Fine Copal ditto	1 1 6
Pale Copal ditto	1 2 6
Pale Copal Carriage ditto	1 4 6
Best ditto ditto	1 14 6
Floor Varnish Inside	0 19 0
Fine Pale Paper ditto	0 18 0
Fine Copal Cabinet ditto	1 2 6
Fine Copal flatting ditto	1 0 6
Hard drying Oak ditto	0 18 0
Fine Hard drying Oak ditto	0 19 0
Fine Copal Varnish ditto	1 0 6
Pale ditto ditto	1 2 6
Best ditto ditto	1 14 6
Best Japan Gold Size	0 16 6
Best Black Japan	1 0 9
Oak and Mahogany Stain (water)	0 17 6
Brunswick Black	0 11 9
Berlin Black	0 19 9
Knotting (patent)	1 18 6
French and Brush Polish	1 14 0
Liquid Dryers in Terebine	0 16 0
Cuirass Black Enamel	0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	25	0
Add if in clay	" "	2	0
Add for every additional depth of 6 ft.	" "	1	6
Planking and strutting to trenches	per foot super	0	7½
Do. to sides of excavation, including shoring	" "	1	6

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	55	0
Add if in underpinning in short lengths	" "	10	0
Add if in floors 6 in. thick	" "	4	0
Add if in beams	" "	5	0
Add if aggregate 1 : 2: 4	" "	15	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	4	6

BRICKLAYER.

		£	s	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	50	15	0
Add if in stocks	"	12	10	0
Add if in Staffordshire blues	"	34	10	0
Add if in Portland cement and sand	"	4	15	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	1½

POINTING.

		s.	d.
Neat flat strucks or weathered joint	" "	0	3½

ARCHES.

		s.	d.
Extra only to the price of ordinary brickwork :—			
Fair external in half brick rings	" "	0	1 0
Axed in stocks	" "	0	2 0
Rubbed and gauged jointed in putty camber or segmental	" "	0	7 0

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and beaded in Portland cement	" "	0	1 8
Setting ordinary register grates and stoves	each	1	5 0
Setting kitchener, including fuming flues, &c., with all necessary fire bricks	"	6	15 0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	9	0
Three-quarter-inch vertical damp course	" "	14	3
One inch on flats in two thicknesses	" "	12	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	6

MASON.

		s.	d.
York stone templates fixed	per foot cube	22	0
York stone sills fixed	" "	35	0
Bath stone and all labour fixed	" "	16	9
Portland stone fixed	" "	25	9

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	98	0
Do. 20 in. × 10 in. Do. Do.	"	115	0
Do. 24 in. × 12 in. Do. Do.	"	117	6

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	9	6
Do. joists	" "	10	6
Do. roofs, floors and partitions	" "	11	9
Do. trusses	" "	14	0

		¾"	1"	1¼"	1½"
Deal rough close boarding	per sq.	60/-	81/-	100/-	108/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	68	0
Do. to beams	per ft. sup.	1	10
Centres for arches	"	2	4
Gutter boards and beams	"	1	9

FLOORING.

		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		82/-	104/-	120/-
Do. tongued and grooved	"		88/-	110/-	127/-
Do. matchings	"	74/-	89/-		
Moulded skirting, including backings and grounds	per ft. sup.	2/4	2/8	3/2	3/8

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	2	0
Two Do. Do. Do.	" "	2	6
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1¼ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights ; average size	" "	5	6

DOORS.

		1¼"	1¾"	2"
Two-panel square framed	per ft. sup.	2/8	2/11	3/1
Four-panel Do.	"	3/-	3/4	3/7
Two-panel moulded both sides	"	3/4	3/7	3/10
Four-panel Do. Do	"	3/8	3/11	4/2

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	22	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	2/3	2/5	2/9
Deal shelves and bearers	"	2/-	2/2	2/3
Add if cross tongued	"	2/-	2/-	2/-

STAIRCASES.

		1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough bracelets		3/4	4/-	4/8	—	—
Deal strings wrot in both sides and framed	"	4/6	4/9	—	—	—

		s.	d.
Housings for steps and risers	each	1	0
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail ; average 3 in. × 3 in.	" "	6	3
Add if ramped	" "	12	6
Add if wreathed	" "	25	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	9d.	Rim locks	2/6
Sash fasteners	1/-	Mortice locks	5/6
Casement fasteners	1/6	Patent spring hinges and letting in to floor and making good	20/-
Casement stays	1/3		
Cupboard locks	1/6		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	44	10
Plain compound girders	"	48	10
Do. stanchions	"	50	10
In roof work	"	54	10

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	2/-	2/6	3/9	4/3
Ogee Do. Do.	"	2/6	3/3	4/-	5/-
Rain-water pipes with ears	"	2/11	3/9		
Extra for shoes and bends	each	4/7	6/3		
Do. stopped ends	"	2/-	2/6	3/9	4/3
Do. nozzles for inlets	"	2/3	2/9	4/-	4/6

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	79	0
Do. Do. in flats	"	74	0
Extra labour and solder in coated cesspools	each	8	0
Welt joint	per ft. run.	0	6
Soldered seam	" "	2	3
Copper nailing	" "	0	8

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	1/2	1/11	2/3	4/-	5/-	
Do. service	"	1/10	2/5	3/-	4/9		
Do. soil	"						8/-
Bends in lead pipe	each					4/-	10/-
Solderer's stop ends	"	1/6	2/-	2/6	3/6	4/3	
Red lead joints	"	1/1	1/4	1/7	2/4	3/-	6/-
Wiped soldered joints	"	3/6	4/3	5/-	6/-	8/-	12/-
Lead traps and cleaning screws	"				18/-	24/-	
Bib cocks and joints	"	7/6	11/3	18/-	48/-		
Stop cocks and joints	"	18/-	20/-	30/-	75/-		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	3	4
Do. Do. siripite	" "	3	9
Do. Do. Keen's	" "	5	0
Add sawn lathing	" "	2	0
Add metal lathing	" "	3	0
Portland cement screed	" "	3	0
Do. plain face	" "	4	6
Mouldings in plaster	per 1 girth	0	3
One-and-a-half granolithic pavings	per yard sup.	6	9

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	1	10
26 oz. Do.	" "	2	0
Obscured sheet	" "	2	3
⅛ in. rolled plate	" "	1	3½
¼ in. rough rolled or cast plate	" "	1	4½
¼ in. wired cast plate	" "	1	9½

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	1	6
Knotting and priming	" "	1	0
Plain painting 1 coat	" "	1	6
Do. 2 coats	" "	2	4
Do. 3 coats	" "	3	2
Do. 4 coats	" "	4	0
Graining	" "	3	0
Varnishing twice	" "	2	6
Sizing	" "	0	4
Flatting	" "	0	9
Enamel	" "	2	0
Wax polishing	per foot sup.	0	11
French polishing	" "	1	9
Preparing for and hanging paper	per piece	2/- to 5/-	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

(*Continued from page* 530)

the new street in continuation of Addison-road from Brook-street to Stocks-road; £38,000 for the improvement of Aqueduct Tunnel; £250,000 for construction of new aqueduct connecting the existing culvert at Langdon and Horeden Brooks; £250,000 for the construction of new storage reservoir; and £250,000 for the extension of a new aqueduct, so as to form a complete second pipe line from the intakes to the storage reservoirs.

RETFORD.—The plans of Mr. H. Southall, for a new central school have been approved by the E.C.

SALFORD.—Plans passed:—Construction of petrol store, "Northcote," Old Hall-road and Upper Park-road, Broughton: alterations to entrance to Seedley Cinema, Langworthy-road, Pendleton; extension of works, Whit-lane, Pendleton; sanitary conveniences, leather works, Orchard-street, Pendleton; dwelling-house, Waterpark-road, Broughton; alterations to "Horse Shoe" Hotel, Broad-street and Church-street, Pendleton; "Langworthy" Hotel, Langworthy-road, and Jubilee-street, Pendleton; additions to premises, Union-street, Broughton; "Woodside," Singleton-road and Bury Old-road Broughton; conversion of baking room into shop, 2, St. James'-road, Broughton; storeroom into lock-up shop, Cross-lane, Salford.

SELBY.—Mr. Pepler, Town Planning Inspector of the Ministry of Health, has held an inquiry respecting the U.D.C. town-planning scheme, which embraces an area of 7,400 acres.

SOUTHWARK.—Drainage plans passed by B.C.:—By Isler & Co., Ltd., to Artesian Works, Bear-lane; Royal Insurance Co., to 56, Borough High-street; Surrey Chapel Committee to Surrey Chapel, Blackfriars-road: H. Samuel, Ltd., to 11, Walworth-road; Pickfords' Ltd., to 42, Long-lane.

WANDSWORTH.—Plans passed by B.C.:—Messrs. E. Evans & Sons, redrainage of workshop, Aluminium Plant and Vessel Co., Ltd., Point Pleasant, Southfield; redrainage of 14, Southville, Clapham North; by Mr. F. J. Rashbrook, addition to Mission Hall, 264, York-road, Fairfield: by Dowsett & Jenkins, Ltd., addition, Copthorne, Aldrington-road, Streatham; by Mr. B. Standish, additions to drainage, 61, Vant-road, Tooting; by Mr. W. Lowe, additions at the Roehampton Club, Roehampton-lane, Putney; by Mr. H. F. Buchan, house, Marius-road, Balham; by Mr. H. Farrow, sanitary accommodation, Nightingale Garage Co., Western-lane, Balham; by F. & H. F. Higgs, Ltd., additions to engine room, County of London Electric Supply Co., Ltd., Wandsworth Generating Station, The Causeway, Fairfield; by Mr. W. Prior, shed at 29, Clifton-street, Clapham North; by Mr. F. Brett, workshop 72–74, Clapham Park-road, Clapham South; by Mr. L. Barrett, additions to factory, 51 and 53, Bickersteth-road, Tooting; by Mr. P. A. Hamilton, on behalf of C. Albert & Co., Ltd., workshop and shed, 187, Brixton Hill, Streatham; by Holliday & Greenwood, Ltd., garage at 45, Tooting Bec-road, Balham; by Chapple & Utting, four houses, Woodlourne-avenue, Streatham; by H. & C. Davis & Co., Ltd., garage at 11A, Park-place, Clapham South; by Leslie & Co., Ltd., 242 cottages and flats, Roehampton Estate; by Mr. F. G. Minter, 376 houses and double tenements, Roehampton Estate; by Mr. T. Price, addition, 21, Gleneagle-road, Streatham; by the British Petroleum Co., Ltd., lavatory accommodation at the Union Brewery, Point Pleasant, Southfield; by Mr. R. T. Warin, addition to drainage, Westcombe Lodge, 76, Wimbledon Park Side, Southfield; by London, Brighton & South Coast Railway Co., for redrainage of buildings at Streatham Railway Station; by Mr. A. B. Pettengell, redrainage of 17, Burstock-road, Putney; by Sir James Carmichael, for redrainage of 1, Patten-road, Springfield.

WARSOP.—In view of the housing development in the district the County Education Authority has decided to purchase a site for a new school.

WIDNES.—The Lancashire C.C. is seeking authority to borrow £8,500 for purchase of a site for a secondary school.

WILLESDEN.—Plans passed by Council:—Drainage, Brentfield road, by Messrs. Wallis, Gilbert & Partners, for the Albion Motor Car Co., Ltd; motor garage, 23, Brondesbury Park, Brondesbury, by Mr. W. Leadbetter, for Mr. L. Van Moppes; alterations to "Kenilworth Castle," P.H., Cambridge-road, Kilburn, by Messrs. L. & W. Whitehead, for the Mitcham and Cheam Brewery Co., Ltd.; steel framed addition, Bentley Motor Factory, Edgware-road, Cricklewood by Messrs. Savill & Sons, for Messrs. Bentley Motors, Ltd.; covering to yard, Cumberland-avenue, Park Royal, for Messrs. Fellows Magneto Co., Ltd.; store Brentfield-road, Willesden, by Messrs. M. W. King & Sons, for the White Heather Laundry Co.; consulting room addition, West Point, 31, Craven Park, Harlesden, by Messrs. J. Parfitt & Co., for Dr. T. Jones; bank, 147, The Broadway, Cricklewood, by Mr. T. B. Whinney, for the London Joint City and Midland Bank; factory at rear of Riffel-road, Willesden Green, by Mr. W. Courtney Le Maitre, for Messrs. Waygood, Otis, Ltd.

WORTLEY.—As the R.D.C. has failed to obtain suitable tenders for their Tankersley housing scheme, it has been decided to ask the Housing Commissioners for further particulars of their proposal to undertake housing contracts.

FIRES.

KEIGHLEY.—Damage estimated at £150,000 has been done by fire at the North Beck Mill, Keighley, belonging to Edmondson & Goodwin, Ltd., worsted spinners.

LINDFIELD.—The "Bent" Hotel, owned by the Southdown Brewery Co., has been seriously damaged by fire.

LLANELLY.—A fire has occurred at the factory and warehouse of Messrs. Pugh Bros., cabinetmakers.

NEWCASTLE-ON-TYNE.—A fire has occurred at the Manor Brewery, Manor Chare, owned by Messrs. Ridley, Cutter & Firth.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him *not later than first post on Wednesday.*

* **Denotes *accepted.*** † **Denotes *provisionally accepted***
‡ **Denotes *recommended for acceptance.***
§ **Denotes *accepted subject to modifications.***

ASHFORD (MIDDLESEX).—For additions and alterations at the County School, Ashford, for the Middlesex C.C. Education Committee. Mr. H. G. Crothall, F.R.I.B.A., County Architect:—

‡Norris & Co., Sunningdale	£27,649
Brand, Petitt & Co.	32,687
H. Knight & Sons	32,354
Mattock Bros.	30,490
A. Fairhead & Son	30,426
A. & B. Hanson, Ltd.	30,250
W. J. Dickens	30,210
A. Monk	30,200
W. Lacey	29,990
Collinsom & Co., Ltd.	29,663

CEFN CRIBBWR.—For the construction of roads and sewers in connection with housing schemes, for the Penybont R.D.C. Mr. J. Simon Davies, F.S.I., surveyor. Quantities by surveyor:—

*Watson & Horrocks, Bridgend	£1,680 4 6
S. F. Hopley, Newport	2,140 4 6
A. G. Collins, Barry	2,155 5 10
J. Davies, Bridgend	2,523 19 7
Davies, Middleton & Davies, Cardiff	2,619 15 11

* *Approved.*

HANDSWORTH.—For erection of twelve pairs of houses, for the U.D.C.:—

*G. R. Rowley	£2,050 per pairs.

HINDLEY.—For erection of temporary buildings a cookery training centres at the Argyle-street Council School, for the Education Committee. Mr. Oswald P. Abbott, architect. Quantities by architect:—

*J. Johnson & Son, Wigan	£1,625

HINDLEY.—For converting part of the Council's stables, Cross-street, into a motor garage. Mr. Oswald P. Abbott, architect. Quantities by architect:—

*J. Johnson & Son, Wigan	£148 10

H.M. OFFICE OF WORKS.—Accepted during September:—

Building Works, &c.—Bath Ministry of Pensions Hospital, Hutting: R. Wilkins & Sons, Bristol; Brighton and Hove District, Ordinary Works and Repairs: Beswarick & Bonner, Hove; Eccles Telephone Exchange, alterations, &c.—Sub-contractors: Asphalting: The Limmer & Trinidad Lake Asphalt Co., Ltd., London, S.W.; paving: W. Snape, Eccles; plastering: W. Brookes, Pendlebury; salting: W. Royle & Co., Manchester; stonework: A. Mackay, Oldham; Holloway Money Order Office, alterations, &c.: The Pitcher Construction Co., Ltd., London, N.; Ilkeston New Post Office—Sub-contractors: Asphalting: Thomas Faldo & Co., Ltd., London, W.C.; Carpenter and joiner: Levi Buxton, Ilkeston; granolithic: Stuart's Granolithic Co., Ltd., London, W.C.; painting: A. Fyson, Ilkeston; plumbing and glazing: Greenhough & Johnson, Ilkeston; slating: J. Dooley, Ilkeston; steelwork: Lewis & Grundy, Ltd., Nottingham; stonework: Park & Thorpe, Nottingham; Kew Insurance Office, extension: Arthur Vigor, Ltd., London, S.W.: Lewisham, conversion of premises into flats: O. Kennard, London, S.E.; Liverpool Bank Telephone Exchange, demolition: Dyer Bros., Liverpool; Liverpool Anthrax Disinfecting Station—Sub-contractors for asphalting: The New Bradshaw's Asphalte Co., Ltd., Manchester; New Barnet Telephone Exchange, extension: Howard Farrow, London, N.W.: Newcastle Ministry of Pensions Hospital, adaptation: Stephen Easten, Ltd., Newcastle-on-Tyne: Newcastle District, ordinary works and repairs: S. F. Davidson, Newcastle-on-Tyne: Tunbridge Wells Employment Exchange, alterations: W. B. Jury & Sons, Tunbridge Wells.

Engineering Services: Brentford Employment Exchange, heating apparatus: The Wembley Heating Co., Ltd., Wembley; Broadmoor Asylum, heating, &c.: E. Deane & Beal, Ltd., London, E.C.; steel chimney, &c.: H. & T. Danks (Netherton), Ltd., Netherton; Chiswick Ministry of Labour, heating apparatus: Colley, Melkle & Co., Ltd., London, W.C.: Dundee Custom House, heating apparatus: S. D. Murray & Co., Ltd., Glasgow: Edinburgh Royal Scottish Museum, boilers: The Beeston Foundry Co., Ltd., Beeston; heating apparatus: Charles Ritchie & Co., Edinburgh; Forest Gate Post and Sorting Offices, heating apparatus; Cannon & Hefford, London, S.E. Manchester Instructional Factory, steelwork: Dorman Long & Co., Ltd. London, S.W; Newcastle Ministry of Pensions Offices, electric wiring: Wilson & Ridley, Newcastle-on-Tyne Old Ford Stationery Office, heating apparatus: The Wembley Heating Co., Ltd., Wembley: electric wiring: Malcolm & Allan, Ltd. London, W.C.; Tottenham Telephone Exchange, heating apparatus: Palowkar & Sons, London, E.C

Fittings.—Golders Green Sorting Office: G. H. Denning, Plymouth; Hammersmith Branch Post Office: The Falcon Works, Ltd., London, S.W.; Isleworth Post Office: The Educational Supply Association, Ltd., London, E.C.; West Wimbledon Sorting Office: Fielding & Bottomley, Halifax.

KIRKINTILLOCH.—For work in connection with the housing scheme, for the T.C.:—

*James Crawford, Glasgow (*brick work*)—Solid walls, £40,080; hollow walls, £41,505.

*Duncanson, Ltd., Glasgow (*wright*) — Solid walls, £37,971; hollow walls, £32,353.

*William Lafferty, Milngavie (*slater*)—£9,134.
*William Hendry & Son, Glasgow, (*plumber*)—£15,773.
*William Lafferty, Milngavie (*plaster*)—£6,737.
*William Brown, Glasgow (*painter*)—£2,811.
*Baillie & Telfer, Glasgow (*glazier*)—£508.
*Falkirk Iron Co. (*grates*)—£1,706.
*John H. Bagg, Shettleston (*timber, fences and gates*)—£2,403.

LANCASHIRE.—For erection of 250 concrete houses for policemen and roadmen, for the Lancashire C.C.:—

*J. Parkinson & Sons (Blackpool), Ltd.	

LONDON.—For erection of three blocks of dwellings in the Old Kent-road, for the City of London Corporation:—

*L. & W. Whitehead	£65,121

LONDON.—Erection of 20 two-roomed tenements for occupation by aged couples, for the Hammersmith B.C. Ministry's Contract Form No. 1, which includes clause for variations in cost of wages and material:—

*Rice & Son, Stockwell	£15,945
Tredegars, Ltd., London, W.	18,154
J. McManus, Ltd., Hammersmith (*a*)	15,997
W. Alban Richards & Co., Ltd., London, S.W.1 (*b*)	15,400

(*a*) Or on prime cost basis.
(*b*) Based on D.B.M.S. prices as existing contract.

LONDON.—For the erection of five (brick built) sub-stations, for the Hammersmith B.C.:—

*J. McManus & Co.	£2,070
W. Alban Richards & Co.	2,125

LONDON (ISLINGTON).—For conversion of Queen's Mansions, North-road, Islington, N., into 47 flats. Mr. E. C. P. Monson, F.R.I.B.A., F.S.I., Architect to the Council, Finsbury-pavement House, E.C.2. Quantities by Messrs. Corderoy & Co., Queen Anne's gate, S.W.1.

*Small & Sons, Ltd., Clerkenwell	£33,905
Geo. Bennett, Hornsey	53,352
W. Chappell, Maida Vale	46,089
Leslie & Co., Ltd., Kensington	45,476
Rice & Son, Stockwell	44,540
Marrable Bros., Leytonstone	39,870
Holliday & Greenwood Battersea	38,998
F. & F. R. Dainton, Highbury	38,992
Sabey & Son, Islington	38,869
Architect's estimate	37,921
Patman & Fotheringham, Islington	36,421
T. Shillitoe, Upper Norwood	35,995
Hooper & Hooper Wood Green	35,262
S. Shaw, Barnsbury	34,498

*Accepted subject to the approval of the Ministry of Health.

LONDON (STEPNEY).—For interior painting and distempering, also building work, at the Institution, St. Leonard's-street, Bromley-by-Bow, for the Guardians:—

*Myall Bros., Ilford	£725 10 0
Stokes & Sons, East Ham	1,075 15 0
Greenwood & Son (Burnley), Ltd., Burnley	1,037 9 7
Walter Gladding & Co., Whitechapel	944 0 0
Hill & Gurr, Bromley, Kent	945 0 0
B. P. Lewinstein, Aldgate	2,225 0 0
C. J. Kemp, Forest Gate	755 0 0

MAIDSTONE.—For painting exterior of Electricity Works, for the T.C.:—

*Edward Smith	£79 10 0
Corben & Son	182 0 0
Cox Bros.	155 16 0
Barney & Son	149 10 0
Elmore & Son	149 0 0
Martin & Newman	128 10 0
N. Smith & Son	125 10 0
Cruttenden & Son	98 0 0

MAIDSTONE.—For additions to the Kent County Ophthalmic Hospital, Maidstone. Messrs. Ruck & Smith, F.R.I.B.A., architects, Maidstone:—

*Elmore & Son, Maidstone	£6,397
G. Pearce & Sons, Maidstone	6,806
G. Ansett & Son, Maidstone	6,779
Norman Smith & Son, Maidstone	6,725
C. Walter, Maidstone	6,720
G. E. Wallis & Sons, Ltd., Maidstone	6,700
Barden & Head, Maidstone	6,666
R. Corben & Son, Maidstone	6,647
Cox Bros., Maidstone	6,500

MARSTON SICCA.—For the erection of 14 cottages, for the R.D.C. Mr. M. T. Harvey, architect, 5, Shakespeare Chambers, Stratford-on-Avon:—

Average per house including site works:

Henry Boot & Sons, Ltd., Handsworth, Birmingham	£1,081 3 8
J. G. Fincher & Co., Stratford-on-Avon	1,162 17

Two Houses at Clifford Chambers:

*Smith & Unitt, Stratford-on-Avon	£986 0 0

Six houses at Long Marston:

*John Bryan, Bidford-on-Avon	933 0 0

Two houses at Dorsington:

*John Bryan, Bidford-on-Avon	871 0 0

Six houses at Welford-on-Avon:

*H. & J. Smith, Bidford-on-Avon	923 8 9

**Recommended by Council for acceptance by Ministry of Health.*

PEURLIOS (CARNARVON).—For the erection of two detached cottages, for Lieut.-Col. P. J. Preece. Mr. Llew Lloyd-Jones, architect and surveyor, Carnarvon :—

Cottage "A":	
*D. J Roberts, Groeslon.....	£1,470 13 0
George F. Williams, Carnarvon	1,778 0 0
Jones Bros., Bontnewydd....	1,769 13 11
W. D. Williams, Carnarvon..	1,661 0 0
Cottage "C":—	
Jones Bros., Bontnewydd....	1,182 18 6
George F. Williams, Carnarvon	1,170 0 0
W. D. Williams, Carnarvon..	962 10 0
D. J. Roberts, Groeslon.....	955 6 0

No tender accepted for cottage "C."

READING.—For internal painting works at the Poor Law Institution, for the B.G. Mr. W. Roland Howell, architect, Blagrave-street, Reading :—

Works to Infirmaries and Central Block—	
*J. Davis & Sons, Reading....	£1,079 0 0
Works to Master's house and Nurses' Home—	
*H. C. Gill, Reading.....	435 12 0

SHARDLOW.—Sewers and roadmaking on the Spondon housing scheme, for the R.D.C. :—

*F. Perks & Son, Ltd., Long Eaton	£3,920 0 0
Radford Tebbs & Co., Ltd. Derby	5,403 10 6
G. F. Tomlinson, Derby.....	4,148 0 0
Hodson & Son, Nottingham.....	4,522 0 0

SHAW BROOK.—For reconstruction of Shaw Brook Bridge, for the Lancashire C.C. :—

*James Byrom, Ltd., Bury £8,500

SKIPPOOL.—For reconstruction of Skippool Bridge, for the Lancashire C.C. :—

*James Byrom, Ltd., Bury £7,000

SOUTH SHIELDS.—For erection of an Infectious Diseases Hospital at Cleadon, for the South Shields Corporation. Mr. F. P. Sissons, Boro' Engineer, South Shields. Messrs. G. Connell & Son, 25, New Bridge-street, Newcastle-on-Tyne :—

†Alex Pringle, Gateshead..... £141,079
(*Accepted subject to approval of Ministry of Health*).

STAINES—For the erection of Manual Training and Cookery Centres and Clinic, at the Council School, Kingston-road, for the Middlesex C.C. Education Committee. Mr. H. G. Crothall, F.R.I.B.A., County Architect :—

‡A. Jordan, Staines.....	£4,528
Brand, Pettit & Co.	5,699
H. Knight & Son.....	5,554
A. Fairhead & Son.....	5,400
Mattock Bros.	5,380
A. & B. Hanson, Ltd.....	5,375
W. J. Dickens.....	5,350
A. Monk	5,300
Collinson & Co., Ltd.....	5,259
Wm. Lacey.....	5,147
Norris & Co.....	5,123
E. Plaistowe.....	4,800

STOCKBRIDGE.—For the erection of six pairs of cottages at Kingsomborne on the Horsebridge site and village site, for the R.D.C. Mr. F. Hensham, Lic.R.I.B.A. Lloyd's Bank Chambers, Andover :—

‡A. Brown, Stockbridge, for 6 pairs, £10,804
Prices for pair, £1,810, £1,800, and £1,792.

WOLVERHAMPTON.—Alterations to wrought-iron fencing at Grassilly School, for the E.C. :—

*W. Hayward & Sons	£120

Large London Estate for Sale.

Acting on the instructions of Lord Amherst of Hackney, Messrs. Yates & Yates are shortly to sell the Tyssen-Amherst estate of about 210 acres in north-east London. The estate comprises between 2,500 and 3,000 houses, with a rent-roll of £35,000.

Protection for Window Cleaners.

At an inquest last week on a window-cleaner, who fell from a window in Ludgate-hill, Dr. Waldo, the City Coroner, said such deaths were very frequent in the City, and the London County Council by-laws required strengthening. Although the by-laws insisted that lifebelts should be worn, no provision was made for anything to fasten them to. The jury added to their verdict of "Accidental Death" a rider calling upon the L.C.C. to obtain legislation to strengthen the by-laws, and to make it compulsory for owners and tenants to provide hooks inside and outside high buildings to which window-cleaners could attach their life-lines. This rider the Coroner promised to send to the L.C.C.

Payment by Results.

A scheme of payment by results is now in operation at the works of Messrs. Lambourne & Co., Ltd., constructional engineers, Openshaw, Manchester. The scheme, which was suggested by the employees and is said to have been taken up with enthusiasm, is based on a "datum line" fixed on the average output for the past six months, and agreed to by both the firm and the workmen. The ordinary rates of pay in operation in the Manchester district are paid, plus a small weekly bonus on account, a bonus on output up to the "datum line," and double bonus on output over and above the "datum line." Previous to the adoption of this system the men were paid individual piece-work rates for each separate job, but the present scheme of bonuses is based on the total output of the works in tons. This method encourages the "team" spirit, each man being financially dependent upon the work of the others, and thereby provides an incentive for the men as a body to see that no slacking takes place.

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"TEMPORA MUTANTUR."
"TIMES are changed." Any of the old school of builders or contractors who have been in trade for a few decades can appreciate the force of this aphorism. A humourous episode illustrative of this truth occurred the other day in a small village not 100 miles from London. Several contractors had tendered for a big contract to be executed in the country and the decision finally lay between two. It was rumoured that whichever one arrived at the magnate's country house first would secure the coveted contract. The rivals reached the nearest village within a few hours of each other on the evening of the day before, and Mr. A. was successful in booking the only one-horse shay in the place. Mr. B. arrived and to his consternation learned that his competitor had out-manœuvred him. The following morning when Mr. A. drove up to keep his appointment, he encountered the smiling Mr. B. coming out of the house. He greeted his friend genially and informed him that everything was signed, sealed and delivered. Poor A. was naturally tremendously astonished and intrigued to discover the manner in which B. had outgeneralled him. Mr. B. informed him that he had been successful in engaging a motor hearse which the village boasted, and had proceeded to his destination per motor transport. The chagrined Mr. A. crowned everything by saying, "That was the hearse to which I raised my hat five miles back."
What is the moral at the tag end of this little narrative? There are several, one would say, the early bird and the worm, &c., but the one we wish to bring home to you is the value of motor transport allied to brains, pluck and energy. Messrs. Allan, Taylor & Co., of 126 and 128, High-street, Wandsworth, S.W., have supplied the trade and given it satisfaction in its entirety; they will be glad to demonstrate this fact to anyone requiring confirmation. The right thing at the right price plus efficient service, to harmonise with the needs of the cash or credit purchaser, is their main qualification in soliciting your patronage. Their advice is yours for the asking. Write or 'phone Putney 1698, in all questions relative to transport difficulties, whatever their nature. Watch this page next week.—[ADVT.]

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